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An Exploration of Resilience on Partners' Responses to Their Loved One's Life Threatening Illness

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Statement of Co-Authorship

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Author 1 assisted with refinement and presentation.

Paper 2: Partners' responses to a life-threatening illness: exploring resilience, and the pre-trauma factors of optimism, trauma history, and mastery

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The Candidate was the primary author and Author 1 contributed to the idea, its formalisation and development.

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Abstract

The experience of a life threatening illness not only impacts upon the patient directly but upon their close others. Partners have been identified as particularly vulnerable to the adverse responses and outcomes associated with their loved one's diagnosis and prognosis. Research on partners' responses to a life threatening illness has predominantly focused on negative aspects stemming from the stressors of their role of caring for the patient together with distress and pathological outcomes from their experiences. What is less known is partners' capacity for resilience and adaptive responses to their loved one's illness. Adopting a salutogenic perspective, this thesis explored partners' responses to their loved one's life threatening illness acknowledging the potential for both positive and negative outcomes. Firstly, a review of the literature regarding partners' responses and outcomes to life threatening illnesses was undertaken to identify research deficits in this area to date. This analysis of existing literature highlighted the need for more balanced investigation of partners' responses, finding an overemphasis on pathogenic outcomes whilst largely neglecting experiences of resilience and adaptive responses in this population. Additionally, the need for more multi-method research design and use of objective physiological measures of adaptation was deemed warranted. Based on review recommendations, an exploration of both positive and negative pre, peri, and post trauma factors known to influence adaptation was conducted with partners identified as high or low in resilience in order to determine whether these groups could be differentiated on self-report, clinical interview of post-trauma symptomatology, and physiological measures of adaptation.

Study 1 explored pre trauma factors comprising optimism, mastery, and trauma history. Optimism was found to be the only factor which differentiated partners varying in their degree of resilience. High resilience partners reported greater optimism than partners identified as low in resilience. Partners' psychophysiological and psychological responses to illness related events (diagnoses, treatment, fear of recurrence) comprised the peri-traumatic exploration in Study 2. Against expectations, high and low resilience partners were unable to be differentiated in their responses on these measures. These results are the first to provide an objective measurement of partners peri-traumatic responses based on degree of resilience.

An exploration of partners post trauma responses considered the factors of coping style, social support, post-traumatic stress symptomatology, and other psychological symptoms. As anticipated, partners low in resilience scored significantly higher on all negative psychological symptoms measured than partners high in resilience. In line with expectations, a strong trend was found for high resilience partners to report greater satisfaction with the social support received from family and friends. Partners satisfaction with the support received from patients was found to be indistinguishable between the resilience groups. Against expectations and findings from previous studies, however, was a failure to differentiate low and high resilient partners by their coping styles.

This exploratory research reflects a novel examination of partners' responses with consideration to resilience in both positive and negative responses to their loved ones' illness. The presented series of studies have expanded existing knowledge regarding factors influenced by partners' resilience, and aided in identifying those struggling to adapt to the experience of their loved one's life threatening illness. In

turn, findings from these studies emphasize the need for interventions to bolster resilience, optimism, and support in low resilient partners facing the challenges experienced in their loved one's life threatening illness. However, further research adopting similar intensive designs is warranted to determine whether the results of the current series of studies are replicated with larger scale samples.

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Publications

Manuscripts submitted to peer-reviewed journals directly arising from the work described in this thesis

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Chapter 2: **Nutting, K**., & Norris, K. (2014). *Partners' responses to a life-threatening illness: exploring resilience, and the pre-trauma factors of optimism, trauma history, and mastery.* Manuscript submitted for publication.

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CHAPTER 1

Review Article: Partners responses to their loved one's life threatening illness: Future directions for psychological research

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Nutting, K., & Norris, K. (2014). *Partners responses to their loved one's life threatening illness: Future directions for psychological research*. Manuscript under review.

Abstract

The stressors and challenges inherent in caring for a partner with a life threatening illness have been widely acknowledged by existing research. Consequently, studies have predominantly focused on the negative and pathological responses of partners from such an experience, without due consideration of salutogenic outcomes. Whilst research has demonstrated that many patients show resilient outcomes despite experiencing some transient psychological difficulties, such research has not been extended to partners. Additionally, research methodologies utilised to examine partner experiences to their loved one's serious illness have not been able to adequately elucidate factors influencing both adaptive and maladaptive adjustment. Research that incorporates a multi-method examination of both adverse and salutogenic approaches to explore partners experience of their loved one's life threatening illness throughout all stages of illness trajectory is warranted. More specifically, it is argued that future research should examine pre, peri, and post trauma responses to identify any differences between partner wellbeing based on their level of resilience. This would enhance knowledge regarding factors that impact partners' resilience, and help identify those struggling to adapt to the experience of their loved one's life threatening illness. In turn, such knowledge would inform interventions to assist these individuals accordingly.

Introduction

Numerous researchers have found that the experience of a life threatening illness represents a significant stressor that may be accompanied by various adverse physiological, psychological, and social features (e.g., Compass et al., 1994; Ell, Nishimoto, Mantell, Hamovitch, & Maurice, 1988; Kangas, Henry, & Bryant, 2002). It is not surprising, then, that there is a link between life threatening illness and psychological maladjustment (Tedstone & Tarrier, 2003) that may manifest as severe negative affect, lethargy, sleep disturbances, irritability, and psychological distress (Van-Servellen, Sarna, Padilla, & Brecht, 1996). A life threatening illness impacts not only on patients' lives, but on the lives of their loved ones. Although it has been established that negative psychological effects associated with being diagnosed with a life threatening illness may also be experienced by close family members (Nelson & Wright, 1996), most research has focused on the ill individual or the relationship unit, rather than specifically targeting the experience of loved ones. Whilst it is acknowledged that couples based research has contributed significantly to our current understanding of individuals' adaptation to illness, it is argued that additional unique information may be obtained from examining partners in isolation.

Research attention on partners' psychosocial responses to a loved one's life threatening illness has significantly increased within the last two decades, with a predominant focus on partners' levels of psychological distress which have been found to be equal to (e.g., Baider, Walach, Perry, & De-Nour, 1998) or greater than their physically ill loved ones (e.g., Cliff & MacDonagh, 2000). For example, partners may experience significant and consistent fear and anxiety in relation to the threatened death of their significant other (Stukas et al., 1999). Certainly, threat of

imminent death and threat to physical integrity can act as catalysts for the development of posttraumatic stress symptomatology (Tedstone & Tarrier, 2003), even when the threat is to a loved one and not oneself. However, it is not only the threat of death which appears to influence partner wellbeing. Specific events along the illness trajectory have been associated with the development of adverse psychological responses in both patients and their loved ones. For example, learning of a cancer detection and confirmatory diagnosis, coping with treatment and treatment related side effects, and the anticipatory fear of recurrence can be identified as particularly likely to elicit a traumatic response (Gurevich, Devins, & Rodin, 2002). In fact, empirical results from studies exploring psychological responses to the experience of cancer (e.g., Green, Epstein, Krupnick, & Rowland, 1997; Ferrell, Grant, Borneman, Juarez, & terVeer, 1999) indicate that cancer survivors and their loved ones consistently report more adverse outcomes, such as distress, fear, and anxiety, associated with the initial diagnosis, further diagnostic tests, treatment, uncertainty about the future, and fear of recurrence (Matthews, 2003).

Increased ambulatory and adjuvant care, shortage of health care providers, and reduced availability of health care resources in recent years have led to a decrease in hospital stays for individuals suffering life threatening illnesses. This has created a greater necessity for recovery to take place within the home setting and therefore enhanced the need for informal caregiving. Consequently, the majority of responsibility for this care appears to fall to family members, most commonly the partner of the patient (Nijboer et al., 1998), with comparatively little assistance from health professionals (Oberst, Thomas, Gass, & Ward, 1989). Typically, partners do not possess the knowledge and skills of formal health care providers nor are they

familiar with the type or amount of care required, the resources available, or how to access and utilise such resources, all of which may impact upon their confidence and preparedness to undertake the caring role (Scherbring, 2002; Reinhard, Given, Petlick & Bemis, 2008).

The challenge inherent in providing informal care to a loved one is often linked with persistent stressors involved with this role and as such has the potential for adverse consequences to the carer (Sorensen, Pinquart, & Duberstein, 2002). The negative psychological, physical, and psychosocial corollaries to partners associated with the demanding emotional and physical nature of their caregiving role, together with their inclination to neglect their own health care needs, have been well documented (e.g., Nijboer et al., 1998). Consequently, reference has been made in the literature to partner caregivers as 'hidden patients' (Reinhard et al., 2008, p.3) and 'co-sufferers' (Northouse, 2012, p.500). Despite extensive research exploring the stressors and challenges faced in caring for a loved one with a life threatening illness, a serious gap persists in the attention given to partners in the health care system and in research methodologies examining partners' adaptive responses.

Whilst the majority of research has cited partners' negative responses to the experience of their loved one's life threatening illness, this may be partly due to the design of these studies and the predominance of deficit-focused biomedical models, without a more holistic conceptualisation considering all possible responses to this experience. Consequently, little is known about resilience and positive adaptation in this population. It has been argued that a comprehensive understanding of either normal responses or extreme reactions to traumatic events that may warrant clinical intervention cannot occur in the absence of an appreciation of the prevalence of, or

factors associated with, resilience (Bonanno, Moskowitz, Pap, & Folkman, 2005). Hence, research incorporating a salutogenic approach for partners of individuals with a life threatening illness is warranted. This type of research would enhance our knowledge of partners' resilience and adaptation and reflect a more balanced investigation of their responses to this experience.

Challenges of caregiving in the context of a partner's life threatening illness

Partners play an integral role both during the treatment period and in relation to the longer term adaptation to the illness and they possess the dual responsibility of caring about and caring for the patient (Grant, Ramcharan, McGrath, Nolan, & Keady, 1998; Hodges, Humphris, & Macfarlane, 2005). They are also in the unenviable position of typically being the primary caregiver and source of support for the patient while having to manage their own feelings and concerns (Resendes & McCorkle, 2006; Thomas, Morris, & Harman, 2002).

Indeed, research examining the effects on couples of dealing with prostate cancer demonstrated that partners reported that they felt it necessary to take care of their own emotional needs associated with the illness so as to better assist and support the patient (Malinski, Heilemann, & McCorkle, 2002). Partners' hesitance to disclose their distress to the patient may also represent an effort to create a sense of normalisation in their lives (Gray, Fitch, Phillips, Labrecque, & Klotz, 1999). Despite providing extensive emotional and practical support to patients, partners' view that their concerns are a 'burden' for the patient and their subsequent reluctance to share these concerns (Ell et al., 1988; Manne et al., 2007) essentially denies them an important source of social support (Blanchard, Albrecht, Ruckdeschel, 1997), an integral component of psychological adaptation (Lichtman, Taylor, & Wood, 1987).

The buffering effect of partner support against patients' distress has long been recognised in the literature (e.g. Cohen & Willis, 1985). Thus, whilst authors (e.g., Northouse, Templin, & Mood, 2001) have emphasized the importance of partner caregivers receiving care and support primarily due to the positive effects this may have upon the patient, they have additionally recognised the value of relieving distress in partners themselves as equally important.

When coronary heart disease (CHD) is considered, stressors significantly impacting upon partners during the acute phase of hospitalisation have been identified as lack of control with regard to the patient's condition and hospital processes, fears about changing relationship roles, feeling uninformed by medical staff, and not being provided adequate opportunities to express their distress and fears associated with the life threatening nature of their loved one's condition (MacIntosh, Johnson, & Lee, 2006). In fact, a partner's capacity to cope with the patient's CHD has been suggested by some researchers as a series of tasks such as living with the fear of their loved one's death (Thompson & Cordle, 1988).

Caregiving partners not only are required to support the patient emotionally, but typically have to adjust existing roles to maintain family wellbeing as well as assume various additional roles (Taylor, Nolan, & Dudley-Brown, 2006). Moreover, these duties need to be balanced with their other responsibilities outside of the home (Blanchard et al., 1997). Practically, partners may be required to undertake the majority of the responsibility with regard to maintaining the household, accepting financial and occupational obligations in the patient's absence from the workplace due to treatment and recovery, and adopt responsibility for the patient's adherence to medication and transportation to and from medical appointments. The provision of

transportation to treatment or aiding the patient in managing treatment side effects creates interruption to daily schedules.

Furthermore, ongoing rearrangements to daily operations are required in response to changes in illness progression (Blanchard et al., 1997). One study of partners of newly diagnosed cancer patients found over half reported grievances with regard to disruptions to their household and childcare routines, employment, and recreational activities (Oberst & James, 1985). Subsequently, partners may have to minimise social roles with friends and family due to the additional responsibilities required during the illness trajectory. Restrictions in social activities may reduce partners' access to social support resources outside the patient, and subsequently contribute to them feeling more consumed by the illness (Northouse, 2012), and initiate a sense of interpersonal loss, generating decreased affection and increased resentment (Williamson, Shaffer, & Shultz, 1998). Indeed, low social support has been found to be a predictor of depression and anxiety in caregivers (Price et al., 2010), and is associated with a greater likelihood of reporting caregiver burden (Goldstein et al., 2004), both of which can adversely impact upon adaptation to the experience of a loved one’s life-threatening illness.

Moreover, during the period of illness and recovery the partner may witness their loved one undergoing potentially noxious and/or disfiguring treatments and observe them to be vulnerable and in pain, manage difficult behaviours and mood swings experienced by the patient, address the potential impact the illness may have had on other family members, particularly children (Blanchard et al., 1997), and confront the possibility of malignant and terminal progression or recurrence of the disease. Partners can experience further stress by merely observing the progression

of the illness and being unable to alter or manage its outcome (Nijboer et al., 1998; Stetz, 1987) and are encumbered by the knowledge that their loved one's illness is potentially life threatening (Taylor et al., 2006).

Caregiver Burden

Given that partners often adopt the informal caregiver role, they may be at risk of a common occurrence within a caregiver setting, that of 'caregiver burden'. This concept refers to the experience of adverse feelings when providing care (e.g., Vitaliano, Young, & Russo, 1991). The literature has suggested that, relative to appropriate matched control groups and population norms, caregiving partners experience higher rates of psychiatric symptoms (e.g., Schulz, Visintainer, & Williamson, 1990). Indeed, recent research has demonstrated a significantly greater likelihood of clinical and subclinical depression and anxiety in a sample of caregivers (n=373) predominantly comprised of partners compared to a non-caregiving norm population (Price et al., 2010). Furthermore, the literature has suggested that, compared to other types of caregivers, partners experience higher rates of psychiatric symptoms (e.g., Schulz, Visintainer, & Williamson, 1990). This may be due to the nature of the relationship with the patient, residing with the patient and witnessing their vulnerability, pain, and suffering, and feelings of powerlessness. Additionally, it has been reported that partners work longer hours in the caregiving role compared to other family caregivers (Montgomery & Kosloski, 1994), and have less opportunity for social and personal activities outside of the caregiving role than other family caregivers. This may reduce the availability of social support, potentially leading partners to feeling frustrated, trapped, and/or resentful (Haley, 2003). Additionally, compared to other informal caregivers, there is a higher

likelihood for partners to suffer caregiver burden (Cantor, 1983) and be susceptible to illness themselves (Kurtz, Kurtz, Given, & Given, 2004).

Nevertheless, few support services or targeted interventions are available to assist those partners suffering negative psychological reactions. Indeed, as partners as informal caregivers are less likely to obtain support and assistance than other caregivers, they are arguably the most vulnerable (Nijboer et al., 2000). This further highlights the need to undertake systematic research targeting this population.

A number of additional considerations support the contention that it is pertinent to study partners' experiences of their loved one's life threatening illness, relative to other family caregivers. Firstly, one's life partner is typically the most significant adult attachment figure (Hazan & Shaver, 1987) and thus the prospect of them succumbing to a life threatening illness may be particularly stressful. Indeed, studies on partner caregivers in dementia populations have demonstrated that the slow demise of one's spouse was deemed to be more stressful than the demise of any other family member, including a parent (Van Den Wijngaart, Vernooij-Dassen, & Felling, 2007). Secondly, given the important caregiving role played by partners and the widely acknowledged influence partners have in patients' recovery (Grant, Ramcharan, McGrath, Nolan, & Keady, 1998; Hodges, Humphris, & Macfarlane, 2005) it is surprising that research has not focused on the influence of resilience on partners' response throughout the illness experience. Indeed, a recent study found a greater effect for the transmission of anxiety from caregiving partners to patients than from patients to partners (Segrin, Badger, Dorros, Meek, & Lopez, 2007). These findings suggest that reducing partners' anxiety may reduce patients' anxiety and may consequently assist in calming patients, which may be beneficial for patient

adaptation and recovery. Thus, in this light it is important that good psychological adjustment in the supporting partner be maintained. Therefore, it is desirable to determine the nature and intensity of a partners response to their loved one's life threatening illness so that appropriate interventions can be developed to moderate the potentially negative effects on individual wellbeing as well as the capacity to offer care and support to an ill partner, and to bolster a resilient response.

Positive responses to caregiving

It has been suggested that positive and negative responses to trauma are not opposite ends of a continuum but independent of one another (Joseph, Williams, & Yule, 1993). In this sense, the possibility exists that individuals who report negative responses may also simultaneously report positive ones (Tedeschi & Calhoun, 1996). However, to date the literature on partners of chronically ill patients has predominantly focused on the development of psychopathology post trauma with limited focus on adaptive outcomes in this population. Bonnano (2004) asserts that dysfunction cannot truly be understood without a more profound understanding of resilience and health. Indeed, resilience is acknowledged as an integral factor in assessing both adaptive and pathological adjustment to trauma (Lyons, 1991). Thus, in order to truly understand the nature of the illness experience there is a need for research examining salutogenic outcomes in partners of patients with life threatening illnesses.

Despite being typically associated with burden and adverse consequences, the experience of informal caregiving also may be perceived positively (Nijboer et al., 2000), with an increasing number of studies also considering the beneficial effects of informal caregiving in the context of a life threatening illness. A recent review of the

literature regarding quality of life of family caregivers (Kim & Given, 2008) identified various studies that reported positive experiences in taking care of an ill loved one including: enhanced personal satisfaction (Folkman, Chesney, & Christopher-Richards, 1994), increased sense of self-worth (Given et al., 1992), benefit finding (McCausland, & Pakenham, 2003), and post trauma growth (Cadell, Regehr, & Hemsworth, 2003; Kim, Schultz, & Carver, 2007). Additionally, Nijboer and colleagues (1998) argued that an enhanced understanding of the predictors and facets associated with positive outcomes may assist to inform theory, lead to better identification of caregivers who do and those who do not require intervention, and provide insight regarding how to augment positive aspects of the caregiving experience (Nijboer et al., 1998).

Psychological impact of a life threatening illness on partners

Distress

It is well recognised in the literature that psychological distress is associated with the experience of a life threatening illness. Certainly, the majority of studies (e.g., Hodges, Humphris, & MacFarlane, 2005; Hagedoorn, Sanderman, Bolks, Tuinstra, & Coyne, 2008; Segrin, Badger, Dorros, Meek, & Lopez, 2007) regarding life threatening illnesses have focused on psychological distress in those directly and indirectly effected, being largely reliant upon measures of depression (Matthews, 2003) and anxiety (Raveis, Karus, & Pretter, 1999). However, researchers have acknowledged the importance of examining other factors impacting upon the illness experience, namely diagnosis (Fang & Manne, 2001), treatment (Gotay, 1984), and recurrence (Blanchard et al., 1997), among those impacted be they the patient or partner.

Existing psycho-oncology research has indicated a moderate but robust association between patients' and partners' distress in cancer populations (e.g., Edwards & Clarke, 2004; Hagedoorn et al., 2008; Segrin et al., 2007; Tuinstra et al., 2004). Similar results have been reported among other illness populations, such as Amyotrophic Lateral Sclerosis (AML; Rabkin, Wagner, & Del Bene, 2000) and among partners of heart, lung, and kidney transplant patients, and heart disease patients (e.g. Taylor et al., 2006). These findings provide support for the view that couples may "react as an interdependent emotional system" (Hagedoorn et al., 2008, p.6). However, other studies with illness populations have reported that partners' distress is higher than that of patients' (e.g. Braun, Mikulincer, Rydall, Walsh, & Rodin, 2007; Cliff & MacDonough, 2000; Langer, Abrams, & Syrjala, 2003). These findings have raised some questions regarding the influence of individual responses to adversity within the couple and emphasise a need to consider the partner in isolation, rather than solely within the context of the relationship unit.

Distress – Spousal Caregivers

The impact of the partner's role on patient outcomes has been the subject of particular research interest. In fact, it has been asserted that patient adjustment to illness and recovery is associated with the social, physical, and emotional adjustment of the partner (Taylor et al., 2006). For example, during the acute period following cardiac surgery, partners have been shown to be the most influential providers in creating a supportive environment for patients (Elizur, & Hirsh, 1999). Additionally, when considering the recovery process, reductions in patients' depression and anxiety and increases in their coping and compliance can be the consequences of the active support of a partner (McCurry & Thomas, 2002). Although partners are able

to influence the recovery of the patients, the challenges they experience in terms of their own adjustment, coping demands, and enhanced stress levels may impede their capacity to do so (Baider et al., 1998). Unfortunately, the pathways of influence from caregiver to patient, the importance of interventions to reduce family caregivers' distress, and the associated 'flow on effects' in reducing patient distress are often unrecognised by health care professionals (Northouse, 2012; Segrin et al., 2007).

Research has proposed that the risk of experiencing depression, compromised wellbeing, and psychological distress is elevated when the role of caregiver is performed by family members of individuals with a life threatening illness (Braun et al., 2007; Schultz & Quittner, 1998). A review of the cancer literature examining the experiences of familial caregivers identified three areas of concern (Northouse & Peters-Golden, 1993): fear of cancer and metastasis, associated with the unpredictable nature and uncertainty of the disease course and progression (Northouse, 1989), and partners' fear of their loved one dying even if they were asymptomatic (Toseland, Blanchard, & McCallion, 1995); partner concerns about their capacity to manage the patients' emotional needs and those of other family members (Toseland et al., 1995); and their ability to manage the disruptions caused by cancer to daily schedules and family functioning (Northouse & Peters-Golden, 1993).

Qualitative exploration of the impact of CHD on wives of patients awaiting heart transplant identified problems in: managing their emotions, anxiety, and feeling overwhelmed; emotionally focusing on the patient; hypervigilance; and the constant fear and awareness of the reality that the patient may die (McCurry & Thomas, 2002). Additionally, research has indicated that vigilance regarding the physiological

symptoms of the patient and the subsequent uncertainty regarding his or her prognosis can create problems in partner coping (Canning, Dew, & Davidson, 1996). This vigilance has been described as particularly difficult to relinquish and has been identified as quite disruptive to both the partner and the couple's functioning and ability to return to a more normal life (McCurry & Thomas, 2002). Despite most partners seemingly adapting successfully to the stressors of chronic illness the process of achieving this remains poorly understood, and approximately 20-30% of partners develop clinically significant levels of distress and psychological impairment resulting from their loved one's cancer (Northouse, 1989; Northouse, Mood, Templin, Mellon, & George, 2000).

A recent literature review (Resendes & McCorkle, 2006) focused on the psychosocial responses of partners whose husbands had undergone prostatectomy with regard to diagnosis, treatment and associated side effects. The literature demonstrated that partners were markedly more distressed overall than their ill husbands. Spousal distress was related to treatment related concerns, lack of information, fear of the unknown and uncertainty, and future oriented concerns. Reactions to the diagnosis comprised both emotional and physical responses. Physical reactions that may be experienced by partners included sleep disturbances, problems concentrating, and fatigue, whereas emotional responses reported were denial, guilt, anger, and anxiety (Riechers, 2004). The post-operative period, however, typically engendered a focus on recovery and associated management of side effects from surgery. In this period partners reported that the responsibilities of the assumed caregiver role were a substantial factor to feeling distressed, together with not knowing what to anticipate in the first few months post-surgery (Giarelli, McCorkle & Monturo, 2003).

An early longitudinal study comprising cancer patients and their partners (Oberst & James, 1985) demonstrated that whereas patients' levels of distress steadily decreased over time, partners' intensity of distress remained constant. Similar patterns of psychological distress were reported in studies investigating the impact of patients' surgical cancer treatments upon partners (Keitel, Zevon, Rounds, Petrelli, & Karakousis, 1990), husbands of breast cancer patients (Northouse, 1989), and partners of patients diagnosed with colon, lung, or breast cancer (Ell et al., 1988). Blanchard and colleagues (1997) stated that these findings may be partially explained by the results of a study (Oberst & Scott, 1988) that demonstrated varying stress levels of partners were dependent on the continued demands of the illness. Moreover, comparative to patients and non-medical norms, caregiving partners of hematopoietic stem cell transplant recipients demonstrated higher distress at both six months and one year post transplant (Langer et al., 2003). Finally, spousal caregivers' psychological distress and problems with role adjustment persisted one year post treatment and were comparatively higher than healthy controls (Hagedoorn, Buunk, Kuijer, Wobbes, & Sanderman, 2000; Northouse, Templin, Mood, & Oberst, 1998).

MacIntosh, Johnson, and Lee (2006) referred to studies that reported higher levels of distress, including anxiety and depression, for partners than the patients during the hospitalisation period following their loved one's myocardial infarction (MI; Mayou, Foster, & Williamson, 1978; Michela, 1987). Moreover, persistent psychological distress, for example anxiety, was evident in 24-38% of partners one year following the MI (Coyne & Smith, 1991; Shanfield, 1990). Similarly, higher psychological distress also has been reported in partners of stroke survivors (Low, Payne, & Roderick, 1999) and was associated with the continuing stressors

encountered as an informal caregiver (Greenwood, MacKenzie, Cloud, & Wilson, 2008). For caregivers of stroke survivors, the sudden and unforseen nature of the stroke is an additional stressor which has the capacity to result in more acute, or posttraumatic, stress reactions (Carek, Norman, & Barton, 2010).

With reference to the findings of higher distress in partners, Keitel and colleagues (1990) have offered a number of explanations. For example, compared to patients, partners may focus more on future trajectory of the disease, and due to having to witness their loved ones' suffering, may feel more helplessness than patients. Conversely, patients may have greater sense of control since they are directly involved in the decision making and treatment processes (Keitel et al., 1990). However, the reasons underpinning the consistently high levels of distress experienced by partners remain poorly understood and largely reliant upon self-report indices.

PTSD and partners of chronically ill individuals

Figley (1986) argued that extreme or post-traumatic stress is differentiated from general stress by its life threatening characteristic, confounding magnitude, and unpredictable outcome. These qualities may reduce the efficacy of normal coping and problem solving approaches and alter the impact of an individual's appraisal of the demands of the situation (Deimling, Kahana, Bowman, & Schaefer, 2002). It is well recognised in the literature that individual differences exist regarding one's capacity to cope with post-traumatic stress. Hence, in this regard people exposed to catastrophic events: may experience Posttraumatic Stress Disorder (PTSD) symptomatology (e.g. intrusion, avoidance symptoms); may not experience any clinically significant posttraumatic stress responses; and may develop PTSD by

meeting the diagnostic criterion as outlined in the DSM-5 (APA, 2013). Compared to depression and anxiety symptoms, which indicate more general stress and anticipatory fears, PTSD is differentiated conceptually on the basis of distinct and extreme events that are avoided or recalled in a more precise way (Breslau & Kessler, 2001).

Aside from the consideration of chronic illness and psychological distress, research has demonstrated that a life threatening illness is able to produce symptoms indicative of PTSD in patients (Andrykowski, Cordova, McGrath, Sloan, & Kenday, 2000; see also Smith, Redd, Peyse, & Vogl, 1999, for a review). Albeit partners of individuals with a life threatening illness do not directly experience the life threatening medical condition, it has been recognised that threats to loved ones may be sufficiently traumatic to elicit PTSD (APA, 2000). The majority of research that has substantiated this stressor criterion has focused on the development of psychological symptoms, including posttraumatic stress symptoms, in the parents of paediatric cancer survivors (Brown, Madan-Swain, & Lambert, 2003; Kazak et al, 1997; Manne, DuHamel, Gallelli, Sorgen, & Redd, 1998). However, the impact is likely to be similar in cases of other types of close relationships. Compared to the aforementioned research on parents of chronically ill children, substantially less research has focused on examining posttraumatic stress reactions in partners of individuals with a life threatening illness. However, evidence has been provided supporting posttraumatic stress symptomatology in a proportion of partners.

A recent German study assessed longer term psychological outcomes in patients and partners following implantation of a mechanical circulatory assist device as a bridge to heart transplantation (Bunzel, Roethy, Znoj, & Laederach-Hofmann, 2008).

Results showed significant differences in both depression and anxiety between patients and their partners, with 2% of patients and 19% of partners meeting the criteria for mild to moderate depression, and 4% of patients and 23% of partners reporting mild to moderate anxiety. Findings regarding posttraumatic stress responses indicated that no patients but 23% of partners met the diagnostic criteria for PTSD. The authors stated that, despite the patients' closer proximity to the disease and threat to life, substantially greater psychological distress and posttraumatic stress responses were experienced by their partners with these symptoms being enduring in nature, emphasizing the need to support the supporting persons (Bunzel et al., 2008).

Noble and Schenk (2008) examined whether PTSD following a patient's subarachnoid haemorrhage (SAH) was a sufficient explanation for the psychiatric symptoms and psychosocial disability reported in significant others. SAH is often associated with emergency medical treatment and a high threat to life or physical disability even with early identification and treatment (van Gijn, Kerr, & Rinkel, 2007). These authors asserted that it was important to study caregivers in this context due to the fact that they are rarely the subject of medical attention, which is predominantly focused on the patient, and that their poor psychological health can have a direct impact on patient recovery. Hence, the authors stated that a more comprehensive understanding of the genesis of any difficulties experienced by spousal caregivers would inform how to decrease or prevent any poor psychological outcomes for these caregivers accordingly (Noble & Schenk, 2008).

Results from retrospective self-report measures, completed by 80 SAH patient/partner dyads, showed that PTSD was diagnosed in 26% of partners, a rate

three times greater than expected in the general population. The use of maladaptive coping strategies was found to significantly increase the likelihood of PTSD. These results mirrored findings from other studies of PTSD in SAH populations (Pritchard, Clapham, Foulkes, Lang, & Neil-Dwyer, 2004) and other potentially traumatic events, such as motor vehicle accidents (Bryant & Harvey, 1995), and chronic illness in one's child (Fuemmeler, Mullins, Van Pelt, Carpentier, & Parkhurst, 2005). Noble and Schenk concluded that the experience of having a loved one suffer and survive a SAH is sufficient to trigger PTSD and, consequently, greater focus on teaching adaptive coping strategies and provision of support to partners is warranted (Noble & Schenk, 2008).

Posttraumatic stress in partners of cancer patients/survivors

Although the past two decades have seen increased research attention to partners' psychological response to cancer, less is known about more specific mental health outcomes, such as PTSD and posttraumatic symptomatology, in this population compared to studies of cancer patients and other illness populations. Despite this reduced attention, some studies have identified posttraumatic symptomatology in cancer partners.

Butler and colleagues (2005) raised awareness of posttraumatic stress in partners of cancer patients through their exploration of pre and post loss posttraumatic stress symptoms (intrusion and avoidance) in 50 partners of women with recurrent or metastatic breast cancer. The researchers examined possible associations between partners' post-trauma symptoms and current, residual, and anticipatory stressors both preceding and following the loss of the patient. Results indicated that 34% of partners' experienced clinically significant pre-loss symptom levels, with these

found to be positively associated with the anticipated impact of the loss and their current level of perceived stress. Higher pre-loss levels of symptoms, previous deaths in the family, and anticipated impact of the loss were found to predict partner's posttraumatic symptoms following the loss. The researchers' asserted their study provided evidence that being confronted with a loved one's recurrent/metastatic breast cancer is a traumatic event for a significant number of partners. Consequently, the authors contended that both the pre and post loss findings suggest a need for early interventions for partners to address pre-loss adjustment difficulties to their loved one's illness and prepare them for future loss (Butler et al., 2005).

Butler and colleagues (2005) study additionally found no associations between partner and patient post-trauma symptom levels. The authors' stated that, despite previous research findings of concordant levels of intrusion symptoms between patients and partners (e.g., Compass et al., 1994), their findings suggest partners post-trauma symptoms levels may be a function of their individual responses to their loved one's cancer as opposed to simply mirroring the patients distress. These findings have replicated those from previous research reporting no concordance between posttraumatic stress symptoms in cancer patients and their partners (e.g., Ey, Compass, Epping-Jordan, Worsham, 1998) and again emphasise the need to consider this population in its own right.

The importance of the inclusion of partners in psychological interventions was also highlighted by the authors of a recent Portuguese study of colorectal cancer patients and their partners (Pereira, Figueiredo, & Fincham, 2011). This study examined the impact on different treatment types on posttraumatic stress symptoms

(intrusion, avoidance, hypervigilance), anxiety, depression and quality of life. Results demonstrated that aggregate treatments (surgery and chemotherapy; surgery and radiotherapy) were associated with higher levels of anxiety, depression and posttraumatic stress symptoms compared to a singular treatment (surgery) in both patients and partners alike. The French translation of the IES (Horowitz, Wilner, & Alvarez, 1979) was used to determine the degree of PTSD symptomatology in a recent study of newly diagnosed lung cancer patients and their significant others, compared with levels from a control group of patients affected by chronic obstructive pulmonary disease (COPD) (Pujol et al., 2013). The findings suggested that lung cancer patients and their significant others were affected by a high level of intrusive thoughts, as measured by the IES (Pujol et al., 2013). Posttraumatic stress for the significant others was found to be equivalent to that affecting the lung cancer patients. Hence, these results suggest that the diagnosis-induced trauma impacted as much upon the significant others experience as it did upon the patients.

Given that research has demonstrated the psychological burden associated with informal caregiving, Vanderwerker and colleagues argued that rates of diagnosable psychiatric illnesses among informal caregivers of advanced cancer patients were largely undetermined due the literature predominantly focussing on caregivers' anxiety and depression symptoms using various self-report symptom scales (Vanderwerker, Laff, Kadan-Lottick, McColl, & Prigerson, 2005). The authors administered a structured clinical interview (SCID) based on DSM-IV diagnostic criteria and found that 13% of caregivers met criteria for a major psychiatric disorder, with 4% of these caregivers identified as meeting diagnostic criteria for PTSD. The authors stipulated that although the rates for psychiatric illness reported in their study were lower than rates of symptomatic distress reported from other

previous studies on caregivers, the measure used to assess distress and psychopathology was an important consideration for these differences (e.g., self – report, structured clinical interview applying DSM criteria). This again highlights the need for systematic, objective data collection methods when assessing this population.

Similarly, a recent study aimed to examine the prevalence of distress and comorbid mental disorders in 26 patients with a brain tumour and their partners in the early treatment phase of the disease (Goebel, von Harscher, & Mehdorn, 2011). Due to the discrepancy of prevalence estimates between self-reported and clinically administered ratings, Goebel and colleagues used a comprehensive test battery which comprised both the structured clinical interview for the DSM-IV (SCID-IV) and self-report measures. Results indicated that partners in particular showed a high incidence of psychiatric and stress symptoms (e.g. decreased concentration, fatigue, or sleeping disorders). Moreover, a high prevalence of significant posttraumatic symptoms of avoidance and intrusion in the IES-R were found, with both 50% of patients and partners meeting the clinical cut off scores on this measure. Results also demonstrated that 38% of patients and 47% or partners met diagnostic criteria for a psychiatric disorder with no participants receiving more than one SCID diagnosis. Results showed that 19% of patients and 13% or partners met diagnostic criteria for Acute Stress Disorder, however no participants met diagnostic criteria for PTSD.

Despite the literature demonstrating an association between PTSD and life threatening illness, the PTSD prevalence rates from the majority of the studies in this area are typically low. Hence, PTSD and chronic psychopathology do not appear to be the typical response experienced by partners when life threatening illness as a

stressor is considered. Thus, there is a need to examine alternate patterns of adjustment.

Resilience

Whether resilience is best conceptualised as a trait, process, or outcome is the subject of considerable conjecture in the literature. However, two aspects are widely acknowledged to precipitate resilience: exposure to an aversive event, and an adaptive response to this event (Richardson, 2002). Regardless of the variations in how this multidimensional construct has been defined, resilience generally refers to the ability of an individual to adapt and cope successfully despite considerable adversity (Rutter, 1987). The concept refers not only to an individual's psychological or dispositional characteristics, but to their ability to utilise environmental factors, such as social support, to better manage stress (Friborg, Hjemdal, Rosenvinge, & Martinussen, 2003).

That is not to say that resilience occurs without the individual experiencing distress or difficulty. It is common for people who have had exposure to adversity to encounter sadness and emotional pain (Quale & Schanke, 2010). However, a key point to resilience is that although resilient individuals may experience an initial transient spike in distress, or short-term dysregulation in their physical and emotional well-being (Ong, Bergeman, Bisconti, & Wallace, 2006), they nonetheless manage to continue functioning effectively and at more or less normal levels (Bonanno, 2005).

Given that some individuals when faced with adversity may be naturally more resilient, a question is raised as to the potential to foster resilience and assist people

manage adversity more adaptively (Rowland & Barker, 2005). In this regard, it is important that the degree of resilience be identified and evaluated as early as possible to enable an increased chance of enhancing resilience and positive outcomes (Luthar, Cicchetti, & Becker, 2000). This underscores the importance of determining whether the degree of resilience demonstrated by partners of individuals diagnosed with a life threatening illness can be differentiated, and if so, how this may influence their responses to the experience.

Resilience – pre, peri, & post trauma

A number of factors have been associated with resilience and adaptation to trauma, and can be understood to comprise pre-trauma, peri-trauma, and post-trauma variables (see Earvolino-Ramirez, 2007). Pre-trauma resilience variables include optimism (Connor & Davidson, 2003; Lee, Brown, Mitchell, & Schiraldi, 2008), self-mastery (Hepburn, Lewis, Tomatore, Sherman, & Bremer, 2007; Pearlin & Schooler, 1978; Rose, Mallinson, & Gerson, 2006), and trauma history (Neff & Broady, 2011; Rutter, 1987; Seery, Holman & Silver, 2010). Peri-trauma factors refer to the individual's immediate reactions to the stressor. Given the focus in the DSM-IV posttraumatic stressor criterion on the responses to traumatic events that define the response as traumatic in nature (APA, 2000), peri-traumatic responses have been considered central to understanding both stress and resilience responses. Certainly, it has been demonstrated that responses at the time of traumatic events can play an important role in both immediate and longer term outcomes (e.g., Hodges et al., 2005).

With a resilient response being identified by what occurs after exposure to the stressor, posttraumatic variables must be considered. Indeed, resilience is partly

defined by the protective use of environmental resources when faced with adversity (Tusaie & Dyer, 2004). Variables that contribute to a resilient response include social support and coping styles (Major, Richards, Cozzarelli, Cooper, & Zubek, 1998; Richardson, 2002; Tusaie & Dyer, 2004). In fact, a strong positive correlation between perceived social support and resilience has been demonstrated (e.g. King, King, Fairbank, Keane & Adams, 1998). Additionally, it is well recognised that adaptive and maladaptive coping strategies have been found to vary in individuals with differing levels of resilience, suggestive of the contribution of coping to resilience (e.g., Yi, Smith, & Vitaliano, 2005). Thus, in order to gain a comprehensive understanding of the resilience process in partners of people with a life threatening illness, it is necessary to examine the role of pre, peri and post-trauma factors in shaping their experience of the illness trajectory.

Responses to Trauma

When reviewing the aforementioned data on post-trauma responses, it is clear that research has primarily focused on adverse outcomes and the development of psychopathology. Indeed, as research on acute and chronic PTSD and post-trauma symptoms has historically dominated literature on how individuals cope with traumatic events, such reactions have generally come to be considered as the norm (Bonanno, 2004). However, a review of the available research on PTSD and trauma indicates that many individuals exposed to traumatic events do not display adverse psychological or psychopathological symptom profiles (Bonanno, 2004).

When an individual is faced with adversity, O'Leary and Ickovics (1995) postulated that there are at least four potential consequences: the initial negative effect continues and the individual eventually succumbs, akin to the development of

PTSD; a less severe negative response involving some degree of impairment, analogous to sub-threshold PTSD symptoms; a return to pre-trauma levels of functioning with no prolonged adverse impact on the individual, referred to as a recovery response; or an attainment of a level of functioning superior to pre-trauma levels, conceived as thriving. Similarly, Mancini and Bonanno (2006) also highlighted the existence of substantive individual differences in the way in which people respond to traumatic and aversive events. These authors posited that the experience of intrusive memories, sadness, or chronic levels of distress experienced by some individuals will persist for years after the aversive event. Other individuals may experience acute reactions which gradually give way to return of pre-trauma levels of functioning, a process of recovery. Finally, a resilient adjustment is demonstrated in other individuals, when they experience relatively transient reactions following the event and rapid return to pre-trauma functioning (Mancini & Bonanno, 2006).

Recently, the literature regarding responses to adversity has proposed a set of trajectories that may ensue from traumatic events, with resilience being one such pathway (Bonanno et al., 2008; Layne, Warren, Watson, & Shalev, 2007). Bonnano's (2004) conception of resilience refers to a person's ability to maintain healthy and stable physical and psychological functioning despite being exposed to "an isolated and potentially highly disruptive event, such as the death of a close relation or a violent life-threatening situation" (Bonnano, 2004, p.20). He asserts that its differentiation from recovery is an integral feature of the concept of resilience. Recovery is referred to by the author as a trajectory whereby normal functioning succumbs temporarily to psychopathology (threshold or sub-threshold) and then gradually returns to pre-trauma levels (Bonnano, 2004). Additionally, the process of

recovery varies temporally, from rapid to several months, to potentially one to two years (Bonnano, 2004). Other trajectories outlined by Bonnano (2004) in response to a traumatic event include a chronic trajectory that refers to an individual's experience of acute distress and subsequent persistent psychopathology, and a delayed trajectory whereby the individual appears to promptly recover only to experience distress or difficulties at a later period. Trajectories of psychological functioning among various populations have been identified that provide some evidence to support Bonnano's (2004) proposition, including those exposed a terrorist attack (Bonnano, Galea, Bucciarelli, & Vlahov, 2006), bereaved persons (Bonnano, Moskowitz, Pap, & Folkman, 2005), those exposed to war zones (Hobfoll et al., 2009), and following a natural disaster (Norris, Tracy, & Galea, 2009). When these populations are considered, many people (35-55%) follow a trajectory of resilience. Chronic distress and recovery trajectories respectively are exhibited by a smaller percentage of people (10-35%), whereas the delayed distress trajectory (10%) is relatively uncommon.

However, Bonnano's (2004) definition has received criticism as it does not take into consideration traumatic events that are not discrete, singular events, such as combat, exposure to aversive events by emergency workers, and the experience of a life threatening illness. Indeed, there is some conjecture in the literature as to whether Bonnano's conceptualisation of resilience and application of trajectories is a suitable paradigm in which to explore life threatening illness as a potentially traumatic experience due to the aforementioned differences between illness as a stressor relative to other traumatic events (Kangas, Henry, & Bryant, 2002; Smith et al., 1999). Indeed, compared to retrospective traumatic events (e.g., bereavement, natural disasters), a chronic illness, such as cancer, involves various past and future

oriented stressors that may be more ambiguous and subtle in nature (Hou, Lam, & Fielding, 2009).

Despite these criticisms, research on psychological functioning using cancer populations has identified similar trajectories in response to trauma, in which resilience is shown to be a common pattern of adjustment. Helgeson and colleagues identified four distinct trajectories in 287 breast cancer survivors in the four years of follow ups post diagnosis (Helgeson, Snyder, & Seltman, 2004). It was evident that the most considerable changes in adjustment occurred within the 13 months from diagnosis. Although one trajectory comprised patients whose initial moderate functioning showed small but steady improvements over time (18%), marked differences were observed in the two trajectories that showed initial low level functioning. One trajectory demonstrated rapid improvement within the 13 months following diagnosis which was maintained during the remainder of the follow up period (27%). The smaller trajectory showed a steady decline in functioning within the same 13 month period (12%) eventually reaching a plateau at 19 months post diagnosis. Finally, the largest trajectory identified comprised patients who demonstrated uniformly high functioning across the follow up period (43%) accompanied by the lowest distress levels, a pattern consistent with a resilient response. Additionally, significantly fewer personal (e.g., self-esteem, personal control, optimism) and social resources (e.g., social support) were found for the trajectory demonstrating a steady decline in functioning. Hence, this study provided further support for Bonanno's (2004) assertion that resilience is the most common response to aversive events, expressly regarding the patient's experience of breast cancer.

Similar findings were reported for Chinese colorectal (CRC) patients (Hou, Law, Yin, & Fu, 2010). A resilient trajectory was demonstrated by the majority of patients(65-67%), proceeded by the recovery (13-16%), delayed distress (10-13%) and chronic distress (7-9%) trajectories in the year following cancer diagnosis (Hou, Law, Yin, & Fu, 2010). Again, these results suggest that, when cancer is considered, a majority of patients will exhibit resilience when dealing with the various stressors associated with diagnosis and treatment. It also emphasises the importance of adopting research paradigms that accommodate assessment of the illness trajectory, i.e. pre, peri, and post-illness factors.

The aforementioned trajectory model could equally be applied to partners of people with a life threatening illness. However, this possibility appears to have been largely overlooked in the literature to date. A detailed examination of partners' positive and negative responses to trauma throughout the illness trajectory would enable identification of those individuals at greater risk of developing stress response syndromes and psychopathology and provide insight regarding the factors contributing to positive responses. In this way, such research may inform the development of interventions to assist those individuals at risk of adverse psychological outcomes.

Methodological considerations for future research

It is important to note that the research studies cited above primarily pertain to studies in which both the partner and patient have been the subject of the investigation, or that partners have been included within a heterogeneous sample of caregivers – typically comprising other family members or close friends of the patient. Whilst these studies have identified various negative and positive aspects to

partners' experiences of their loved one's illness, sampling issues may be ignoring unique experiences of partners. For example, it could be argued that the nature of resilience may be different at varying levels of analysis, namely using the family as the unit of analysis as opposed to studies focusing on the resilience of individuals. Additionally there is evidence to suggest that, compared to adult offspring, partner caregivers report higher burden (Vagharseyyedin & Molazem, 2013; Pinquart & Sorensen, 2003) and caregiver stress (Rinaldi et al., 2005) and lower levels of instrumental coping and informal support (Pinquart & Sorensen, 2011). Pinquart & Sorensen (2003) pointed to the potentially moderating effects of a higher likelihood of engagement in social activities and fulfilling alternate roles outside the home by adult child caregivers than partners to help explain these findings. Hence studies incorporating 'family caregivers' as a homogenous population may be omitting the salient experiences and adaptation of partners as caregivers, and raise question as to the validity and generalisation of their findings for this population.

Whilst adjustment to serious illness between couples has been demonstrated in the literature, there are differences that exist between the partner and patient experiences of life threatening illness which need to be recognised and explored. Additionally, the discrepancy in availability and efficacy of support and interventions that have been primarily centred on patients must also be considered. Hence, the 'one size fits all' approach of these studies may be detracting attention away from the partner as an individual.

Whilst much of the aforementioned research is apt to consider caregivers as homogenous, it should be acknowledged that some authors contend the importance of identifying potential heterogeneity when examining caregivers' adaptation and health outcomes (Gaugler, Kane, & Newcomer, 2007). Indeed, caregivers are known

to experience a variety of stressors at different stages of the illness trajectory (Given et al., 2004). For example, the receipt of diagnosis may be associated with feelings of shock, numbness, and disbelief regarding the prospect of a poor prognosis and, ultimately, the potential for losing their loved one to a life threatening illness. Moreover, the diverse challenges and demands inherent in partners' caregiving role may engender different perceptions of control that may entail varied coping strategies, and thus represent a greater sensitivity to context (Fitzell & Pakenham, 2010).

However, as previously described, research has demonstrated that, despite the acknowledgement of some contextual differences between varying illnesses, partners experience similar challenges and stressors in caring for their ill loved one, such as: the well documented negative psychological, physical, and psychosocial corollaries to partners associated with the demanding emotional and physical nature of their caregiving role (e.g., Nijboer et al., 1998); their inclination to neglect their own health care needs (e.g., Nijboer et al., 1998); reduced availability and receipt of social support, social activities, and respite (e.g., Northouse, 2012; Williamson, Shaffer, & Shultz, 1998); their lack of control with regard to the patient's condition (Blanchard et al., 1997; MacIntosh, Johnson, & Lee, 2006) and their constant fear and awareness of the reality that the patient may die (e.g., McCurry & Thomas, 2002; Toseland, Blanchard, & McCallion, 1995). Additionally, greater distress has been reported for partners (relative to their loved one and/or non-caregiving partners) following myocardial infarction (MI; Mayou, Foster, & Williamson, 1978; Michela, 1987; Coyne & Smith, 1991; Shanfield, 1990) and in cardiovascular (e.g., Bunzel, Roethy, Znoj, & Laederach-Hofmann, 2008), stroke (e.g., Low, Payne, & Roderick, 1999), and cancer (e.g., Braun, Mikulincer, Rydall, Walsh, & Rodin, 2007; Cliff &

MacDonough, 2000; Langer, Abrams, & Syrjala, 2003) populations. Similarly, greater caregiving burden, relative to other caregivers, has been reported in caregiving partners in varying chronic illness populations (e.g., Cantor, 1983; Haley, 2003; Price et al., 2010; Schulz, Visintainer, & Williamson, 1990).

These factors, coupled with the wide acknowledgments in the literature that one's life partner is typically the most significant adult attachment figure (Hazan & Shaver, 1987) and that partners have an important influence in patients' recovery (Elizur, & Hirsh, 1999; Grant, Ramcharan, McCurry & Thomas, 2002; McGrath, Nolan, & Keady, 1998; Hodges, Humphris, & Macfarlane, 2005; Taylor et al., 2006), suggest that adopting an homogenous approach to the exploratory examination of partners' salutogenic experiences to their loved one's life threatening illness may be warranted. Moreover, potential difficulties in this area of research may be recruiting partners from varying illness populations and limited sample sizes given the small population in Tasmania, and for this reason a homogenous approach may also be warranted or indeed necessary.

Indeed, the possibility exists that there are other contextual factors that have influence on partners' responses that may have been largely overlooked or unchartered. In this light it appears that research studies focussing on partners' responses to their loved one's life threatening illnesses can explore factors intrinsic to this experience.

To date studies have predominantly adopted retrospective self-report measures to develop an understanding of how people respond and adapt to stressful and potentially traumatic events. Despite the use of multiple methods and measures in a few studies (e.g. Bonanno, Rennicke, & Dekel, 2005) and the acknowledgement regarding the importance of multiple levels of analysis (Curtis & Cicchetti, 2003) –

including psychophysiological and biological measures – this remains a largely underutilised research approach (Wald, Taylor, Asmundson, Jang, & Stapleton, 2006). Indeed, psychophysiological examinations of caregivers' experiences during the illness trajectory have been largely neglected in the literature to date. Available psychophysiological studies have primarily focused on the individuals directly impacted by a traumatic event, including cancer patients (e.g., Pitman et al., 2001), and have typically reported heightened reactivity in individuals diagnosed with PTSD relative to non-PTSD clinical populations. To our knowledge, only one study has examined partners' psychophysiological responses to their loved one's cancer experience (Pitman, 1999). Whilst similar results were found for PTSD partners' heightened skin conductivity responses, no explanations were provided by Pitman (1999) to account for the lack of differentiation found between PTSD and non-PTSD partner groups for the other psychophysiological measures (e.g., heart rate and corrugator electromyogram responses). Furthermore, to date there have been few objective measurements of resilience, particularly physiological measurements with regards to individuals' peri-traumatic reactions to traumatic experiences. Available physiological studies examining resilience have been limited by reliance upon subjective self-report data (e.g., (Amital, Amital, Shohat, Soffer, & Bar-Dayan, 2012) or use of laboratory induced stressors as opposed to actual exposure to a stressful life event (e.g., Tugade and Frederickson, 2004) to examine physiological reactivity and/or recovery in individuals identified as high or low in resilience. Hence, investigations that employ varied methods (e.g. self-report, structured clinical interviews, psychophysiological measures of distress) are warranted to enhance the validity of research findings.

No identifiable studies to date have incorporated self-report measures of resilience (e.g., Resilience Scale, RS; Wagnild & Young, 1993) together with measures of factors known to influence adaptation to stressful events (e.g., mastery, coping, optimism, prior trauma, social support) among spousal caregivers of patients diagnosed and treated for a life threatening illness. Studies that have used a measurement of resilience, namely the RS, have found significant correlations between those high in resilience and increased positive affect, and decreased negative affect and caregiver burden in family caregivers of spinal cord injury and traumatic brain injury patients (Simpson & Jones, 2013). Furthermore, older female partners whose partners had undergone coronary artery bypass graft surgery (CABG) that were high in resilience reported greater social support, use of adaptive coping, and positive appraisals of the surgical experience, and fewer life-change stressors (Marnocha & Marnocha, 2013). Hence these studies have begun to explore the relationships between caregivers' levels of resilience and factors known to influence one's adaptation to stressful events.

When partners' of individuals with a life threatening illness are considered, it remains unknown as to whether their level of resilience can distinguish their responses to this stressful experience. Hence literature could benefit from an exploratory investigation of the role of partners' level of resilience (high, low) on pre, peri and post trauma factors. This may be achieved by examining partners independent of their relationship as opposed to focussing on the role of the partner relationship in terms of its influence on resilience. If results of such an exploratory analysis yield significant differentiation between those partners high and low in resilience on these factors then this would provide information to identify those

partner's vulnerable to negative consequences as well as inform development of interventions to assist those partners accordingly.

Conclusion

Despite widespread recognition that resilience influences responses to a traumatic or adverse event, little research has focused on resilient characteristics and outcomes in partner caregivers of patients with a life threatening illness, and even less on partner-specific interventions. It is important that future research examine whether partners can be distinguished on the basis of their responses to trauma using factors known to influence resilience levels and adaptation to trauma. More specifically, future research should examine pre, peri, and post trauma responses to identify any differences between partner wellbeing based on their level of resilience. This would enhance knowledge regarding factors that impact partners' levels of resilience, and would assist identify those struggling to adapt to the experience of their loved one's life threatening illness. In turn, such knowledge would inform interventions to assist these individuals accordingly.

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Chapter 2

Partners' responses to a life-threatening illness: exploring resilience, and the pre-trauma factors of optimism, trauma history, and mastery

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Abstract

A consideration of resilient outcomes and factors predictive of this has been largely neglected in research on partners of individuals with a life threatening illness. The present exploratory study investigated whether pre-trauma factors could be differentiated between partners identified as high (n=22) or low (n=16) in resilience. 38 male and female partners completed self-report measures of optimism, mastery and trauma history. Results refuted the hypothesis that partners higher in resilience would report higher levels of mastery and experience less exposure to prior traumatic events relative to partners low in resilience. However, as hypothesized, significantly higher optimism scores were found for high resilience partners. Based on the present study's findings, it could be argued that partners low in resilience may benefit from clinical approaches aimed to foster optimism.

Introduction

The stressors and challenges faced by partners of patients with a life threatening illness have been widely recognised (e.g., Nijboer, et al., 1998). It has been identified that the psychological distress experienced by partners is either equal to (e.g., Blanchard, Albrect, & Ruckdeschel, 1997; Segrin, Badger, Dorros, Meek, & Lopez, 2007) or exceeding that of patients (e.g., Braun, Mikulincer., Rydall., Walsh., & Rodin, 2007; Cliff & MacDonough, 2000) and can include post-traumatic stress symptomatology (e.g., Carak, Norman, & Barton, 2010; Vanderwerker, Laff, Kadan-Lottick, McColl, & Prigerson, 2005). However, less is known about positive adaptation and resilience in this population.

More recently, there has been a shift in conceptualisation and research regarding responses to traumatic events from an emphasis on deficit focused models to a greater recognition of positive adaptation to adversity. Bonanno (2004) asserts that, despite some short lived perturbations in functioning following a traumatic event, most individuals will return to normal relatively promptly without any lasting adverse impacts on their functioning.

However, empirical research specifically targeting partners of individuals with a life threatening illness appears to have been overlooked in this regard. This is surprising in that conceptualisations of the experience of a loved one's illness as a potentially traumatic event have received empirical support, as well as research indicating that partner distress potentially negatively impacts patient recovery in the longer term (Taylor, Nolan, & Dudley-Brown, 2006).

Adaptation to, and subsequent functioning following, traumatic events are known to be influenced by pre, peri, and post-trauma factors (Hodge, Austin &

Pollack, 2007). Pre-trauma factors are those which are known to have existed prior to the trauma, with the effects of optimism, mastery and previous traumatic exposure being commonly researched in this regard.

Optimism

Dispositional optimism (Scheier & Carver, 1985) reflects one's expectation of a positive outcome even in the face of difficulty (Carver, Scheier, Miller, & Furford, 2009), and is one of the most predominantly researched pre-trauma factors influencing adaptation following trauma. The literature suggests that optimistic people employ more adaptive means of responding to adversity than pessimistic individuals (Carver et al, 2009). Indeed, research has demonstrated a significant association between dispositional optimism, positive adaptation, and well-being overall (e.g., Carver & Scheier, 1998; Scheier and Carver, 1992).

Furthermore, a number of studies have demonstrated that optimistic (compared to pessimistic) individuals are more resilient when faced with considerable adversity (for a review see Carver, Scheier, Miller, & Furford, 2009). This literature has expanded to the psycho-oncology domain which has reported associations between resilience and better quality of life (QOL) and decreased psychiatric symptomatology (e.g., Hou, Law, Yin, & Fu, 2010; Loprinzi, Prasad, Schroeder, & Sood, 2011; Wu, Sheen, Shu, Chang, & Hsiao, 2013).

Optimism has also been shown to have a positive impact on the psychological well-being among those caring for ill family members. An example is Given et al.'s (1993) study on caregiving spouses of individuals diagnosed with cancer. These authors found that caregiver optimism predicted less depression and reduced the negative impact of caregiving on their physical health. Similarly, a longitudinal

study on cancer caregivers reported that greater optimism in caregivers predicted lower depression and reduced perceptions of burden regarding their health and schedule from their caregiving role (Kurtz, Kurtz, Given, & Given, 1995). Studies on spousal caregivers of dementia patients have yielded similar findings (e.g., Shifren & Hooker, 1995). The results from these studies contended that optimistic caregivers may construe the caregiving experience less negatively and thus be able to maintain stressors within manageable limits (Kurtz, Kurtz, Given & Given, 1995). Collectively, these findings suggest that optimism may be a contributor to partners' adaptation to challenges associated with their caregiving role and experiences, and a focus of interventions designed to assist those struggling to manage the caregiving role.

Mastery

The extent to which one's belief that they are able to exert control or influence outcomes in their life is referred to as mastery (Pearlin & Schooler, 1978). Presumably when one perceives control over their fate they will mobilise resources amenable to adaptive coping and persist with goal pursuit (e.g., Ben-Zur, 2002; Elfström & Kreuter, 2006; Rotter, 1966) as opposed to an individual with a more fatalistic outlook. Zautra, Hall, and Murray (2008) assert that a resilient individual is defined by their perception that they can attain desired outcomes and uphold a sense of mastery when faced with life events that threaten their personal control beliefs. Studies have demonstrated that caregivers who perceive greater control over their lives are at a lower risk for depression and stress than individuals with a lower sense of control (e.g. Infurna, Gerstorf, & Zarit, 2013; Kaplan & Boss, 2004). A marked sense of personal mastery has been shown to buffer against increases in depressive symptoms (e.g., Kaplan & Boss, 2004), burden (Bibou-Nakou, Kidaiou, &

Bairactaris, 1997), and psychological distress (Bibou-Nakou, et al., 1997) in caregivers.

Global sense of mastery has been reported to protect against the negative impact of caregiving stressors on caregivers physical health and wellbeing (e.g., Harmell, Chattillion, Roepke, & Mausbach, 2011; Roepke et al., 2008). Whilst mastery is recognised in the literature as somewhat stable over time, it may be undermined or bolstered by particular experiences or events (Wolinksy, Wyrwich, Babu, Kroenke, & Tierney, 2003; Pudrovska, 2010). A life threatening illness is a significant stressor that may be accompanied by various adverse features including progressive disease severity, noxious treatments, adverse disease related and treatment side effects, pain, dysfunction and disfigurement, uncertainty about the future (Kangas, Henry, & Bryant, 2002) and potential for recurrence. Consequently, the experience of a serious illness may engender feelings of helplessness, loss of control, and significant anxiety regarding the future (Tedstone & Tarrier, 2003). A life threatening illness (e.g., cancer) as a significant chronic stressor may have a negative impact on one's sense personal mastery, which is consistent with the *stress process perspective* (Pearlin, 1999). Conversely, the potential of a serious illness to increase one's sense of mastery is proposed by the *positive catalyst perspective* (Ryff, Keyes, & Hughes, 2003). This perspective posits that the stressors inherent in a life threatening illness may provide opportunities and motivation for self-development and for one to strive to cope with the existential challenges – i.e. to be resilient.

Trauma History

Traditionally, the literature has demonstrated positive associations with adverse psychological outcomes and lower resilience for individuals exposed to a greater

number of traumatic events (for a review see Bremner, Southwick, & Charney, 1995), with some researchers suggesting that symptoms from previous traumatic events have the potential to be reactivated by subsequent exposure to trauma (Solomon, Garb, Bleich, & Grupper, 1987). More recently, however, authors have postulated a 'steeling effect' of trauma history on the development of resilience (e.g., Seery, Holman, & Silver, 2010).

Compared to studies on patient populations, research has less extensively examined the impact of trauma history on partner caregivers. As outlined by Nutting and Norris (under review) many studies that have incorporated partners have included them together with patient populations (e.g., Ey, Compass, Epping-Jordan, & Worsham, 1998) hence there is some question as to the emphasis placed on partners as individuals as opposed to their support and carer role for patients.

The role of major lifetime stressors was explored by Silver-Aylaian and Cohen (2001) to determine the impact on patients' and partners' reactions to cancer. Findings suggested that considerable exposure to prior lifetime stressors increases patients' vulnerability for negative appraisals about their cancer. Hence experiencing many prior stressful events may lead to patients feeling threatened and overwhelmed rather than being able to think positively about their cancer (Silver-Aylaian & Cohen, 2001). Moreover, partners' increased risk for negative affect was associated with greater exposure to previous stressful events. Consequently, they may feel angry that they have been subjected to a greater number of difficulties in the course of their lives to date (Silver-Aylaian & Cohen, 2001).

Studies of partners following bereavement suggest that prior losses of close others may serve to exacerbate distress, especially in the event of recent multiple

losses (Stroebe & Stroebe, 1987). Additionally, these cumulative losses have been found likely to lead to a sudden loss of mastery (Rando, 1993). Similarly, the analogy between previous stressors and subsequent stressors may have influence on traumatic stress reactions (Horowitz, Field, & Classen, 1993). Evidence that paralleled this viewpoint was provided in a sample of partners of metastatic breast cancer patients following the loss of their spouse (Butler et al., 2005). Post loss results indicated that partners with greater risk of traumatic stress reactions (e.g., avoidance and intrusion) had experienced more numerous and recent family deaths.

Some exposure to adversity may be beneficial

Akin to theories of stress inoculation (Meichenbaum, 1985), it is argued that "exposure to adversity in moderation can mobilise previously untapped resources, help engage social support networks, and create a sense of mastery" (Fletcher and Sarkar, 2013, p.20). These theories posit that a moderate exposure to adversity (or indeed trauma) provides an opportunity to foster future resilience (Seery, Holman, & Silver, 2010). Indeed, there is evidence to suggest that exposure to a moderate number of previous adverse life events, compared to high or no adversity, is associated with better mental health and wellbeing (Seery, Holman, & Silver, 2010). Conversely, one's capacity to manage stress may be overwhelmed by high adversity and undermine mastery and 'toughness'.

Theoretically, the findings from the aforementioned studies examining links between adaptation and pre-trauma factors should extend to partners of individuals with a life threatening illness. However currently there is no empirical basis to support this assumption, nor inform intervention strategies.

Aims and Hypotheses

The present study investigated whether pre-trauma factors of optimism, mastery, and trauma history could be distinguished between partners identified as high or low in resilience. It was anticipated that partners higher in trait resilience would report higher levels of optimism and mastery and have experienced less exposure to prior traumatic events. Conversely, partners lower in trait resilience were expected to report exposure to a greater number of prior traumatic events and lower levels of mastery and optimism.

Method

Participants

The eligibility criteria for inclusion in the current study specified that participants had to be partners of individuals who had been diagnosed with, and treated for, a life threatening illness and able to adequately recall events (e.g., diagnosis, treatment, and fear of recurrence) along the illness trajectory. Initially, 43 partners were recruited to the current study. Participants were recruited from local community and support services, public and private hospitals, medical private practices, media coverage and advertising, and from poster and web based advertisements at the University of Tasmania, School of Psychology. Five volunteers were excluded from the final sample due to not fulfilling study requirements. The remaining 38 participants were allocated to high and low resilience groups on the basis of their scores on the Resilience Scale (Wagnild & Young, 1993).

Participants ages ranged from 33 to 82 with a mean age of 60.7 (*SD* = 11.7). Characteristics of participants as specified by group are presented in Table 1. As demonstrated in Table 1 there were no significant differences between the groups

with respect to age. Similarly, there were no significant differences in the proportion of men and women in each group, as shown in Table 1.

Table 1

Participant characteristics per low and high resilience groups (N = 38)

Variable	Level		Group		Analysis
			Low	High	
			% (n)	% (n)	
Sex	Female		75 (12)	54.5 (12)	χ^2 (1, N=38) = 1.7, *p*=.197
	Male		25 (4)	45.5 (10)	
Age		M	58.6	62.3	*t*(36) = -.97, *p*=.340.
		SD	13.0	10.6	

Materials/Questionnaires

A brief questionnaire obtained demographic and illness-related data from the participants and was used for descriptive purposes (See Appendix A).

*The Resilience Scale (*RS; Wagnild & Young, 1993) comprises two factors which measure the construct of resilience: personal competence and acceptance of self and life, and was used to assess participant resilience. The RS contains 25 items rated on a 7-point Likert scale, and a single score is provided by summing all responses, with higher scores indicating higher levels of resilience. Excellent reliability of the RS has been demonstrated (α = 0.76 to 0.91, Wagnild & Young, 1993; and α = 0.95, Lee, Brown, Mitchell, & Schiraldi, 2008). The present study additionally reported excellent reliability (α = 0.91). A recent review of resilience scales (Ahern, Kiehl, Sole, & Byers, 2006) deemed the psychometric properties of the RS to be superior in comparison to other resilience scales.

*Life Orientation Test – Revised (*LOT-R*;* Scheier, Carver, & Bridges, 1994) was employed to provide a measure of dispositional optimism. The 10-item Likert measure yields a single optimism score, with higher scores indicating greater optimism. The LOT-R has demonstrated good internal consistency (α = 0.78) (Scheier, Carver, & Bridges, 1994) with a high reliability reported in the present study (α = 0.83).

*Pearlin's Self Mastery Scale (*SMS*;* Pearlin & Schooler, 1978) assessed participants' perceived sense of personal mastery and control over life outcomes. The SMS is a 7-item Likert scale, with higher scores indicating greater self-mastery. The SMS displayed adequate internal consistency (α = 0.75) in a longitudinal study of caregivers of individuals with dementia (Aneshensel, Pearlin, Mullan, Zarit, & Whitlatch, 1995). Similar reliability was reported in the present study (α = 0.77).

Life Events Checklist (CAPS; Blake et al., 1995). The Life Events Checklist from the Clinician Administered PTSD Scale was used to assess pre-trauma history. Participants indicated their experience of various types of trauma by checking one of the following options: "Happened to me"; "Witnessed it"; "Learned about it", "Not Sure" and "Doesn't apply". Mean number of traumatic life events experienced were calculated by summing the number of items endorsed within each response category (Direct, Witnessed, Learned about, Doesn't Apply).

Procedure

Prior to commencing recruitment for this study, ethical approval was gained from both the Social Science and Health and Medical Research Ethics Committees from the University of Tasmania. An information sheet was provided to the participant and informed consent obtained prior to participation (See Appendix B).

Participants were provided with a questionnaire package which included: the Resilience Scale, Life Orientation Test-Revised, Self-Mastery Scale, and Life Events Checklist from the CAPS.

Data Analysis

Questionnaires were analysed using t-tests.

Results

Description of the Sample

Comparisons between groups with regards to patient's illness related data are presented in Table 2.

Table 2

Descriptive factors associated with patient's illness for Low Resilience and High Resilience groups.

Variable	Level	Group		Analysis
		Low % (n)	High % (n)	
Prior Symptoms	Nil	31.3 (5)	9.1 (2)	χ^2 (5, N = 38)=4.4, *p*=.493
	<1mth	12.5 (2)	22.7 (5)	
	1-5mths	31.3 (5)	45.5 (10)	
	6-11mths	18.8 (3)	13.6 (3)	
	1yr	0 (0)	4.5 (1)	
	>1yr	6.3 (1)	4.5 (1)	
Time since diagnosis	1-5mths	6.3 (1)	22.7 (5)	χ^2 (3, N = 38)=2.5, *p*=.480
	6-11mths	12.5 (2)	9.1 (2)	
	1yr	12.5 (2)	4.5 (1)	
	>1yr	68.8 (11)	63.6 (14)	
Time between diagnosis & treatment	Nil	12.5 (2)	13.6 (3)	χ^2 (3, N = 38)=1.7, *p*=.640
	<1mth	43.8 (7)	54.5 (12)	
	1-5mths	43.8 (7)	27.3 (6)	
	6-11mths	0 (0)	4.5 (1)	
Illness Type	Cardiovascular	12.5 (2)	0 (0)	χ^2(13, N = 38)=17.6, *p*=.287
	Prostate cancer	18.8 (3)	9.1 (2)	
	Lymphoma	18.8 (3)	9.1 (2)	

	Skin Cancer	0 (0)	4.5 (1)	
	Bone Cancer	0 (0)	4.5 (1)	
	Breast Cancer	6.3 (1)	9.1 (2)	
	Carcinoma	6.3 (1)	4.5 (1)	
	Testicular Cancer	12.5 (2)	0 (0)	
	Oesophageal Cancer	18.8 (3)	4.5 (1)	
	Gynaecological cancers	0 (0)	9.1(1)	
	Pancreatic cancer	0 (0)	4.5 (1)	
	Bowel Cancer	6.3 (1)	9.1 (2)	
	Leukaemia	0 (0)	27.3 (6)	
	Mesothelioma	0 (0)	9.1 (2)	
Treatment type	Surgery	37.5 (6)	4.5 (1)	χ^2 (7, N = 38)=10.6, *p*=.157
	Chemotherapy	18.8 (3)	18.2 (4)	
	Hormone Therapy	0 (0)	4.5 (1)	
	Pharmacotherapy	0 (0)	4.5 (1)	
	Induced Coma	6.3 (1)	0 (0)	
	Infusion	0 (0)	4.5 (1)	
	Transplant	0 (0)	4.5 (1)	
	Combination of therapies	37.5 (6)	59.1 (13)	
Treatment successful?	Yes	62.5 (10)	40.9 (9)	χ^2 (3, N = 38)=5.9, *p*=.116
	No	18.8 (3)	4.5 (1)	

	Ongoing	12.5 (2)	45.5 (10)	
	Unsure	6.3 (1)	9.1 (2)	
Recurrence	Yes	6.3 (1)	31.8 (7)	χ^2 (2, N = 38)=8.8, p=.012*
	No	75.0 (12)	27.3 (6)	
	N/A	18.8 (3)	40.9 (9)	

* p<.05

As demonstrated in Table 1 there were no significant differences between groups in the proportion of reported partner illness factors (e.g. prior symptoms, time since diagnosis, treatment success). However, a significantly higher proportion of high resilience partners reported recurrence of their partner's illness. Furthermore, a higher proportion of partners from the high resilience group reported that recurrence was not a factor due to their partners still receiving treatment.

Correlations between pre-trauma factor measures (LOT-R, SMS) and resilience (RS) are presented in Table 3.

Table 3

Correlations between the Resilience Scale (RS), Life Orientation Test – Revised (LOT-R), and the Self Mastery Scale (SMS)

Measure	1	2	3
RS	-	.468**	.129
LOT-R	.468**	-	.392*
SMS	.129	.392*	-

** Correlation significant at the .01 level (2 tailed); *Correlation significant at the .05 level 2 tailed)

LOT-R (Optimism)

A significant difference was found between groups on the mean scores for optimism, t (36) = 3.18, p=.003, g = 1.0, with the high resilience group scoring significantly higher on this measure (M = 17.7, SD = 3.9) than the low resilience group (M = 13.5, SD = 4.2) as anticipated.

Self-Mastery Scale (SMS)

Both the low resilience (M = 19.5, SD = 4.0) and high resilience (M = 20.6, SD = 4.7) groups mean scores indicated a moderate to high degree of self-mastery reported. However, no significant differences were found for scores of self-mastery between the groups t(36) = .78, p=.440, g = .26.

Life Events Checklist

The mean number of traumatic life events exposed to per response category (Direct, Witnessed, Learned about, Doesn't Apply) for the Life Events Checklist for both low and high resilience groups are presented in Table 4.

Table 4

Mean number of endorsed traumatic life events per response category for low and high resilience groups.

Response Category	Group		Analysis
	Low	High	
Total events endorsed	6.3 (*SD* = 3.7)	6.7 (*SD*=4.0)	*t*(36)=-.32, *p*=.749, *g*=.11
Directly Experienced	2.31 (*SD* = 2.2)	2.5 (*SD* = 1.9)	*t*(36)=-.28, *p*=.781; *g*=.09
Witnessed	.94 (*SD* = 1.3)	1.8 (*SD* = 1.8)	*t*(36)=1.6, *p*=.126, *g*=.51
Learned About	3.0 (*SD* = 3.4)	2.0 (*SD* = 2.5)	*t*(36)=1.1, *p*=.282, *g*=.36
Doesn't Apply	9.2 (*SD* = 3.8)	9.3 (*SD* = 4.1)	*t*(36)=-.05, *p*=.958, *g*=.02

There were no significant group differences found for the total number of traumatic life events endorsed, nor specific types of exposure. The high standard deviations presented in Table 4 indicate a great degree of variance in participants' responses regarding their exposure to various life events.

Consideration was then given to the types of response categories reported per group for each of the life events listed on the Life Events Checklist. Results are presented in Table 5.

Table 5

Life Events Checklist items per response category for low and high resilience groups.

Life Event	Level	Group		Analysis
		Low	High	
Natural Disaster	Direct	2 (12.5%)	3 (13.6%)	χ^2 (3, N = 38)=.26, *p*=.968
	Witness	1 (6.3%	2 (9.1%)	
	Learned	3 (18.8%)	3 (13.6%)	
	DA	10 (62.5%)	14 (63.6%)	
Fire/explosion	Direct	5 (31.3%)	9 (40.9%)	χ^2 (3, N = 38)=3.2, *p*=.358
	Witness	1 (6.3%)	5 (22.7%)	
	Learned	2 (12.5%)	2 (9.1%)	
	DA	8 (50.0%)	6 (27.3%)	
Transport Accident	Direct	8 (50.0%)	9 (40.9%)	χ^2 (3, N = 38)=5.9, *p*=.119
	Witness	0	2 (9.1%)	
	Learned	6 (37.5%)	3 (13.6%)	
	DA	2 (12.5%)	8 (36.4%)	
Accident	Direct	1 (6.3%)	4 (18.2%)	χ^2 (3, N = 38)=7.6, *p*=.055
	Witness	1 (6.3%)	7 (31.8%)	
	Learned	6 (37.5%)	2 (9.1%)	
	DA	8 (50.0%)	9 (40.9%)	
Toxic	Direct	0	4 (18.2%)	χ^2 (3, N = 38)=3.5, *p*=.319
	Witness	1 (6.3%)	2 (9.1%)	
	Learned	2 (12.5%)	2 (9.1%)	
	DA	13 (81.3%)	14 (63.6%)	

Physical Assault	Direct	1 (6.3%)	8 (36.4%)	χ^2 (3, N = 38)=8.1, *p*=.044
	Witness	2 (12.5%)	0	
	Learned	3 (18.8%)	1 (4.5%)	
	DA	10 (62.5%)	13 (59.1%)	
Weapon Assault	Direct	2 (12.5%)	4 (18.2%)	χ^2 (3, N = 38)=1.6, *p*=.665
	Witness	0	1 (4.5%)	
	Learned	3 (18.8%)	2 (9.1%)	
	DA	11 (68.8%)	15 (68.2%)	
Sexual Assault	Direct	3 (18.8%)	2 (9.1%)	χ^2 (2, N = 38)=1.1, *p*=.578
	Witness	0	0	
	Learned	3 (18.8%)	3 (13.6%)	
	DA	10 (62.5%)	17 (77.3%)	
Sexual Other	Direct	6 (37.5%)	5 (22.7%)	χ^2 (2, N = 38)=2.9, *p*=.237
	Witness	0	0	
	Learned	0	3 (13.6%)	
	DA	10 (62.5%)	14 (63.6%)	
Combat	Direct	2 (12.5%)	2 (9.1%)	χ^2 (2, N = 38)=.17, *p*=.917
	Witness	0	0	
	Learned	3 (18.8%)	5 (22.7%)	
	DA	11 (68.8%)	15 (68.2%)	
Captivity	Direct	0	0	χ^2 (1, N = 38)=.76, *p*=.384
	Witness	0	0	
	Learned	3 (18.8%)	2 (9.1%)	
	DA	13 (81.3%)	20 (90.9%)	

Human Suffering	Direct	0	3 (13.6%)	χ^2 (3, N = 38)=4.5, *p*=.208
	Witness	5 (31.3%)	7 (31.8%)	
	Learned	0	2 (9.1%)	
	DA	11 68.8%)	10 (45.5%)	
Violent Death	Direct	0	0	χ^2 (2, N = 38)=.55, *p*=.760
	Witness	1 (6.3%)	3 (13.6%)	
	Learned	5 (31.3%)	6 (27.3%)	
	DA	10 (62.5%)	13 (59.1%)	
Unexpected Death	Direct	0	0	χ^2 (2, N = 38)=6.7, *p*=.034
	Witness	2 (12.5%)	9 (40.9%)	
	Learned	9 (56.3%)	4 (18.2%)	
	DA	5 (31.3%)	9 (40.9%)	
Other Harm	Direct	0	0	χ^2 (1, N = 38)=.75, *p*=.387
	Witness	0	0	
	Learned	0	1 (4.5%)	
	DA	16 (100%)	21 (95.5%)	
Other Stress	Direct	8 (50.0%)	9 (40.9%)	χ^2 (3, N = 38)=2.2, *p*=.525
	Witness	1 (6.3%)	3 (13.6%)	
	Learned	0	2(9.1%)	
	DA	7 (43.8%)	8 (36.4%)	

As demonstrated in Table 4 there were only two life events, physical assault and unexpected death, which significantly differed in proportion between the groups. In regards to physical assault, the high resilience group reported a greater number of directly experienced incidents. However, when indirect experience was considered,

the low resilience group reported more incidents of witnessing and learning about this type of life event. In terms of participants' exposure to an unexpected death, a higher proportion reported witnessing this event from the high resilience group whilst the low resilience group reported a greater number of incidents in which they had learned about an unexpected death from another.

With regards to accidents, a trend towards significance was found as the high resilience group reported higher degree of direct experience and witnessing an accident than the low resilience group. However, a greater proportion of incidents were reported by the low resilience group when learning about an accident was considered.

Discussion

The aim of this preliminary study was to explore whether partners identified as low or high in trait resilience could be distinguished on the basis of pre-trauma factors known to have influence on adaptation to adversity, namely optimism, mastery, and exposure to prior traumatic events.

Optimism

The hypothesis that partners high in resilience would demonstrate a higher degree of optimism than those identified as low in resilience was supported. The high resilience group scored significantly higher than the low resilience group on the measure of optimism (LOT-R). Although the current study comprised a mixed-gender population, these results are consistent with previous research demonstrating high optimism in women identified as resilient (Lee, Brown, Mitchell, & Schiraldi, 2008). Additionally, these results are arguably consistent with previous studies

finding a strong positive relationship between higher optimism and greater psychological health and wellbeing (e.g., Carver & Scheier, 1998).

These results suggest that partners in the high resilient group were able to acknowledge the temporary nature of dire occurrences and the high likelihood that circumstances will improve (Peterson, 2000). Additionally, optimists have been described as having greater flexibility in cognitive responses and adaptive behaviours that may facilitate/contribute to their enhanced adaptation to adversity (Aspinwall, Richter, Hoffman, & Chang, 2001). More specifically, relative to more pessimistic individuals, optimistic individuals appear to have greater problem-solving capacity and are seemingly more adept in modifying their cognitions and behaviours to correspond with key aspects of negative situations (Aspinwall et al., 2001). Consequently, it may be that the optimistic partners may differ from partners low in optimism in their behavioural tendencies when facing the stressors associated with their loved ones illness and their caregiving responsibilities. It is plausible that optimistic partners have greater confidence about subsequent attainment of desired goals and will persist in the face of stressors, viewing them as more manageable, and thus may be less inclined to feel overwhelmed. Conversely, partners lower in optimism may have greater adverse and inflexible ruminations about their loved one's illness and their caring role and may try to avoid or escape these difficulties, or be overwhelmed by these stressors and cease trying. Moreover, it is feasible that those high resilient partners demonstrated to be higher in optimism may be utilising more adaptive approaches to coping with the stressors faced throughout the illness trajectory, and employing more active coping strategies in order to lessen the impact of the stressors faced. Optimistic partners' greater cognitive flexibility may be evident in their changing of coping strategies to suit changing circumstances and in

being able to restructure their perceptions in order to ‘come to grips with the situation’ (Carver, Scheier, & Segerstrom, 2010) that is the illness experience.

Additionally, it could be expected that the optimism in higher resilient partners may impact upon their ability to mobilise resources to assist in their adaptation, such as seeking information and support from both professionals and family and friends, and hence receiving greater sources of practical and emotional support.

Mastery

The expectation that the high resilience group of partners would report greater mastery compared to partners in the low resilience group was not supported as there were no significant differences between scores of self-mastery between groups ($p>.05$). These unanticipated results are noteworthy given previous research demonstrating a positive association between mastery, positive wellbeing, and adaptation to trauma (e.g., Ben-Zur, 2002; Infurna, Gerstorf, & Zarit, 2013; Reich & Zautra, 1981, 1990). Consequently, the findings from the present study do not provide support for either the stress process or positive catalyst theories (e.g., Dagan et al., 2011). However, a previous study argued the failure to report lower mastery in response to burden in family caregivers of mentally ill individuals may have been associated with the measurement of mastery in this population (Rose, Mallinson, & Gerson, 2006). Rose and colleagues (2006) questioned the validity of results obtained from the Personal Mastery Scale, postulating that this scale may not be able to detect the lack of control felt by family caregivers in specific illness related situations, and argued that narrative data from the same study demonstrated various references to caregivers' lack of perceived control regarding the management of the illness.

Anecdotally, some partners in the present study expressed a sense of powerless, uncertainty, and feeling overwhelmed by the caregiving role during the interview process. However, as qualitative analysis was not included in the present study's design, information pertaining to resilience of these partners was not recorded. Thus, it is difficult to ascertain whether this narrative data may have paralleled previous studies demonstrating a positive association between self-mastery and resilient outcomes (e.g., Mausbach et al., 2007; Harmell et al., 2011).

Trauma history

Contrary to expectations, no significant group differences were found in the number of prior traumatic events experienced by partners. The unexpected results do not replicate findings from previous studies demonstrating either adverse psychological outcomes from one's exposure to cumulative adversity (Andrylowski and Cordova,1998; Green et al., 2000) or subsequent resilient responses following exposure to adversity in moderation (Seery, 2011; Seery, Holman, & Silver, 2010; Seery, Leo, Lupien, Kondrak, & Almonte, 2013; see also Neff & Broady, 2011). It should be noted, however, that despite no apparent support for these models, we cannot discount either theoretical perspective due to our reliance on retrospective data within a relatively small sample.

It is plausible that trying to manage the roles and responsibilities of caregiving during the course of their loved one's illness could be the focus for many caregiving partners. This is together with the expected concerns and challenges presented by being witness to a loved one enduring pain and discomfort from illness or treatment related symptoms and potential negative emotional impacts. Hence, previous stressful life events may not be considered a key influence on their experience.

Additionally, a life threatening illness involves both present day and future oriented stressors. Managing the daily stressors and challenges inherent in illness, together with anticipatory concerns regarding a loved one's prognosis and uncertainty about the future, may also contribute to one's focus on present day and future oriented stressors as opposed to 'what has gone before'. Deimling, and colleagues (2002) noted that whilst previous exposure to traumatic events was not found to be significantly related to cancer survivors' distress, current life events were found to play a contributing role (Deimling, Kahana, Bowman, & Schaeffer, 2002). These authors asserted that life events such as health concerns or death of a spouse are likely to be more predominant in this population, thus incorporating a measure of current life stressors may be warranted in future research.

Limitations

A key limitation to the present study is its small sample size. Hence the findings presented should be interpreted with caution and considered preliminary, with a need for further research with larger populations to examine the investigated factors.

An additional issue regarding the generalizability of these findings pertains to recruitment of participants to the study. Partners' responded to print or other media advertisements about the study expressing their interest to be involved. It is possible that distressed partners and partners generally not coping with the stressors and challenges associated with their loved one's illness and/or from their caregiving role may have been reluctant or unable to participate due to the constraints inherent in their role as caregiver. Consequently, the current sample may have been impacted by such selection bias.

Due to the consideration of participant burden, demographic information focussed on predominantly illness related illness factors, age, and gender. It is recommended that future larger scale research with this population should incorporate more detailed demographic information (e.g., length of relationship, length of time spent caregiving, caregiver psychological history, caregiver comorbidities, marital and cohabitation status, race and ethnicity). The inclusion of the additional demographic information may assist with both a more detailed description of the sample and may enable sub-group analyses accordingly. Furthermore, information pertaining to the stage of cancer (localised and advanced cancers) was not obtained and should be included in future research. Indeed, the exploratory nature of the present study serves as a platform for future research to replicate using a larger sample that would allow for sub-group analyses such as illness and treatment types and stage of disease.

Given the unpredictable nature of a traumatic event (such as the diagnosis of a life threatening illness), research studies usually obtain information only after trauma occurrence. This generally necessitates measuring respondents' pre-trauma attributes by retrospective self-report. It could be argued that an individual's assessment of their pre-trauma measures may be biased by their current post-trauma distress (e.g., Reijineveld, Crone, Verhulst, Verhulst, & Verloove-Vanhorick, 2003) or functioning generally. The use of retrospective self-reports to measure pre-trauma factors represents a weakness in this area of research.

Clinical Implications

When reviewing the results supporting higher optimism reported by partners high in resilience, it appears obvious that clinical interventions targeting increases in

optimism are warranted for this population. However, in clinical practice this may not be without challenge. Whilst the literature has traditionally viewed individuals' levels of optimism as trait-like and hence somewhat stable over time (Scheier & Carver, 1992), there is some inference that change can indeed occur (Segerstrom, 2006) and that optimism may be malleable (Carver & Scheier, 2005).

For instance, Cognitive Behaviour Therapy (CBT) aims to foster more positive cognitions in individuals, thus decreasing distress and promoting a renewed endeavour towards desired outcomes (Carver, et al., 2010). It has been argued that CBT interventions appear to have the most potential to increase optimism (Seligman, 1990). Despite the success of CBT interventions in ameliorating cognitive distortions and reducing depression, Pretzer and Walsh (2001) argue that these outcomes do not translate necessarily into increased optimism. Further contention refers to the efficacy of CBT based interventions to amend prolonged and pervasive biases of dispositional optimism and pessimism (Pretzer and Walsh, 2001) and whether an induced optimistic view could be permanent and comparable in beneficial effects as those stemming from an inherently occurring optimistic view (Carver et al., 2010).

Conclusion

Although exploratory in nature, the current study suggests that high resilience partners have greater levels of optimism, which may not only be a key contributor to partners' adaptation to the challenges and stressors associated with their caregiving role and experiences but may also inform the development of interventions designed to assist those caregivers struggling to manage these stressors. Moreover, these results may indicate a higher propensity for high resilience partners to respond well to clinical interventions targeting positive reinterpretation and flexibility in thinking such as CBT. Based on the present study's findings, it could be argued that partners

low in resilience may benefit from clinical approaches aimed to foster optimism, however there remains some conjecture in the literature as to the efficacy of such interventions on maintaining optimism in the longer term, hence the need for further research with this population. Nonetheless, the present study contributes to the literature by providing an empirical basis of examining the influence of resilience on optimism, mastery, and prior trauma on partners' responses to the experience of their loved one's a life threatening illness

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CHAPTER 3

An examination of resilience on peri-traumatic responses to a partners' life-threatening illness

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Abstract

This study examined the influence of resilience on partners' peri-traumatic responses to their significant other's life threatening illness. 38 partners were allocated to high and low resilience groups based on their responses to the Resilience Scale. Guided imagery was used to elicit psychophysiological and psychological responses to illness-related events. No significant differences in psychophysiological or psychological responses were identified between the low and high resilience groups, indicating that partners experience distress associated with the illness experience irrespective of resilience level. This study uniquely adopts a salutogenic and objective assessment of partners' peri-traumatic responses to the illness experience.

Introduction

Imagine you have just been informed that your partner has been diagnosed with cancer. What are you thinking? What are you feeling? What can you notice is happening within your body at this moment?

This scenario is a reality for many spouses every year. Approximately 120,700 new cancer diagnoses in Australia alone were anticipated for 2012 (AIHW, 2012) arguably indicating a large number of partners concurrently exposed to the potentially traumatic experience of a loved one's life threatening illness. Considering the potential risk of psychopathological outcomes in partners subjected to this experience (e.g., Braun, Mikulincer, Rydall, Walsh, & Rodin, 2007; Kurtz, Kurtz, Given, & Given, 2004; Matthews, 2003; Nijboer et al., 2000), it is imperative to identify factors contributing to partners' adjustment to inform the development of psychological interventions to assist those at risk of negative psychological outcomes triggered by their loved one's diagnosis.

Whilst the process of taking care of a loved one can be gratifying, with variously reported positive outcomes such as a sense of achievement and empowerment (e.g., Shirai, Koerner, & Kenyon, 2009; Nijboer et al., 1998), most research has focused on the negative aspects of caregiving to partners' emotional, psychological and physical heath (e.g., Pinquart & Sorensen, 2003, 2007; Schulz, Visintainer, & Williamson, 1990). However, this predominant focus on pathology does not offer any explanation as to why some individuals adapt more successfully than others or brought us closer to precluding serious psychological problems in this population (Seligman & Csikszentmihalyi, 2000).

In fact, it is recognised in the literature that not all individuals exposed to potentially traumatic events will develop pathological outcomes (Kessler et al., 1995). It has been reported that despite 50% of adults being exposed to a potentially traumatic event during their lifetime, only 7% will meet criteria to warrant a PTSD diagnosis (Ozer, Best, Lipsey, & Weiss, 2003). This remains evident when facing even the most pernicious stressors (Mancini & Bonanno, 2006), exemplifying the considerable variability in individuals' responses to trauma.

Models of responses to trauma

The literature regarding individuals' responses to adversity has proposed a set of trajectories that may ensue from potentially traumatic events that consider both adaptive and adverse responses and outcomes (Bonnano, 2004; Bonanno et al., 2008; Layne, Warren, Watson, & Shalev, 2007; Norris et al., 2009; O'Leary & Ickovics, 1995). Resilience, generally denoted by comparatively mild and transient disruptions and a stable healthy trajectory of functioning over time despite exposure to trauma (Bonanno, 2005), is one such pathway of response. Alternate trajectories of response include: recovery/protracted recovery, which refers to a trajectory of moderate to severe initial perturbations proceeded by a gradual return to normal functioning (Bonanno, 2005; Layne et al., 2007); delayed distress/dysfunction which describes a trajectory of initial healthy functioning that eventually declines to the development of trauma-related psychopathological outcomes (Bonnano, 2005; Norris et al., 2009), and chronic severe distress/dysfunction which refers to the persistence of an initial stress reaction and impaired functioning following the traumatic event (Bonanno, 2004; Layne et al., 2007; Norris et al., 2009; O'Leary & Ickovics, 1995).

These proposed trajectories of response and adjustment to trauma acknowledge peri-traumatic reactions to traumatic events, with a general consensus that at least some transient disruption to normal functioning (e.g. distress) occurs during and immediately following exposure to a potentially traumatic stressor regardless of the trajectory (Bonnano, 2004; Layne et al., 2007; O'Leary & Ickovics, 1995). Thus, in this way the presence of resilience does not preclude the occurrence or experience of psychological distress or negative responses during and immediately after trauma exposure, including the peri-traumatic period (Mancini & Bonnano, 2006; Zautra, Hall, & Murray, 2008). In fact, it is the relatively rapid recovery from this 'dip' in one's normal functioning in response to challenge that distinguishes resilience from recovery and other outcome trajectories (Bonanno, 2004). This is evident in Layne and colleagues (2007) proposed set of trajectories following exposure to a traumatic event (see Figure 1).

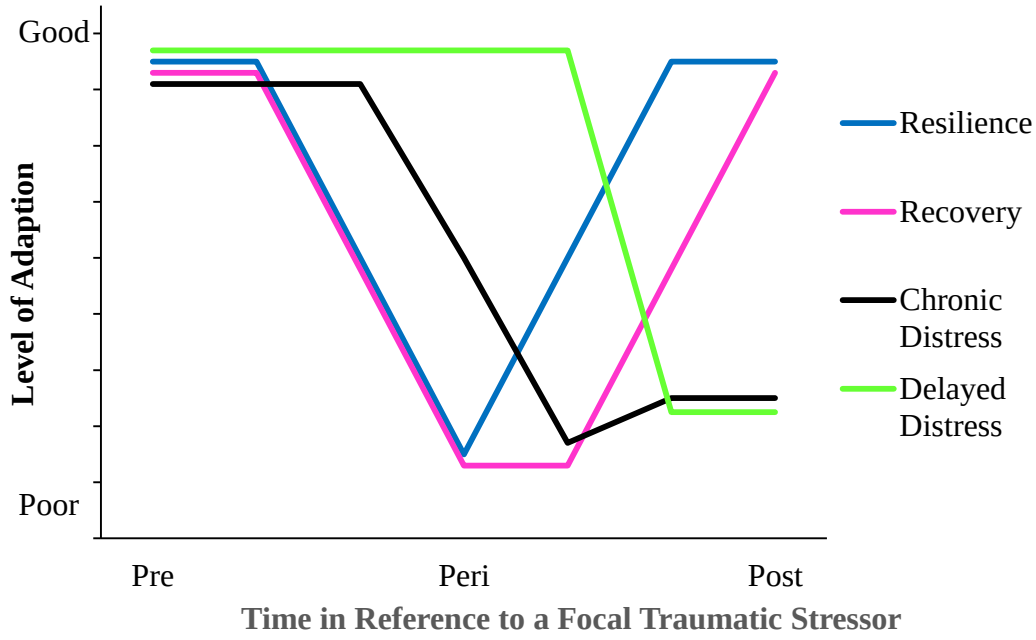


Figure 1. Trajectories of response to a traumatic stressor (adapted from Layne et al., 2007)

Researchers examining patients' response trajectories to their life threatening illness (Helgeson, Snyder, & Seltman, 2004; Hou, Law, Yin, & Fu, 2010; Lam et al., 2010) have demonstrated that the majority of patients tend to follow a trajectory of resilience, with comparatively smaller numbers of patients tending to experience the recovery (13-16%), delayed distress (10-13%), and chronic distress (7-9%) trajectories respectively (e.g., Hou, Law, Yin, & Fu, 2010). This suggests that, despite the distress experienced throughout their illness experience, many patients are able to return to normal emotional functioning relatively promptly (Helgeson, Snyder, & Seltman, 2004; Hou, Law, Yin, & Fu, 2010; Lam et al., 2010).

Whilst there has been empirical support for these trajectories with populations directly impacted by trauma, less is known about partner peri-traumatic responses to their loved one's life threatening illness. Given the important caregiving role played

by partners and the widely acknowledged influence partners have in patients' recovery (Grant, Ramcharan, McGrath, Nolan, & Keady, 1998; Hodges, Humphris, & Macfarlane, 2005) it is surprising that research has not focused on the influence of resilience on partners' responses throughout the illness experience. It is plausible that partners would follow the same trajectories of response as theorized by researchers including Layne and colleagues (2007), however, this has not been empirically examined with this population.

Peri-traumatic stress reactions

Another consideration is that researchers have demonstrated that the manner in which an individual responds at the time of the adversity, known as peri-trauma, has been shown to influence their adaptation to the overall experience (e.g., Hodge, Austin, & Pollack, 2007). Despite acknowledgement that both patients and their partners experience high levels of distress when faced with various aspects of the illness experience (e.g., Hodges, Humphris, & MacFarlane, 2005; Hagedoorm, Sanderman, & Bolks, Tuinstra, & Coyne, 2008; Segrin, Badger, Dorros, Meek, & Lopez, 2007), few studies have objectively examined this distress at the peri-traumatic stage for either participant category.

Peri-traumatic stress reactions denote the varied stress-related emotional, behavioural, cognitive, and physiological symptoms that occur throughout and immediately succeeding exposure to a stressful or traumatic experience (Agorastos et al., 2013). Such responses have been strongly associated with one's adaptation following exposure to a traumatic event and, particularly, ensuing development of traumatic stress symptoms (e.g., Hodge et al., 2007).

To date peri-traumatic responses have been vastly understudied relative to post-traumatic functioning. Additionally, information pertaining to one's peri-traumatic reactions or distress has usually been obtained through retrospective self-report measures (e.g., McCaslin et al., 2006; Agorastos et al., 2013). However, research has demonstrated that the passage of time and the degree of post trauma distress and/or current symptoms or functioning may impact the validity of one's recollections, and therefore responses on these measures (Southwick, Morgan, Nicolaou, & Charney, 1997). Hence, self-report measures may not reflect the most objective means of attaining a true indication of peoples' peri-traumatic responses and reactions. To address these relative shortcomings other methodologies using real life experiences of participants have been developed and implemented to study peri-traumatic responses.

Psychophysiological studies

The measurement and assessment of one's psychophysiological and psychological reactions throughout exposure to a traumatic event as it occurred would undoubtedly be impracticable. This is due to the inherent ethical and logistical constraints present in examining peri-traumatic reactions to events that are unique, unanticipated, and unable to be recreated (Haines, Williams, Brain & Wilson, 1995; Williston, 2001).

It has been determined, however, that the psychophysiological and psychological responses experienced throughout one's recall of a traumatic event mirror those felt during the actual original event (Lang, 1979). The use of idiosyncratic imagery is one means of overcoming the previously identified difficulties in eliciting psychophysiological and psychological responses to peri-

traumatic cues (e.g., Pitman et al., 2001). This methodology has been used successfully to examine both psychophysiological and psychological reactivity to a variety of behaviours and clinical presentations otherwise difficult to measure (e.g., Haines, Josephs, Williams, & Wells, 1998; Williams, Haines, Johnson-Glading, Davidson, & Sale, 2006; Williams, Haines, & Sale, 2003).

An advantage to this methodology is that an individuals' emotional recovery post-event does not affect psychophysiological 'patterns' to imagery of prior experiences (Brain, Haines, & Williams, 1998). This is converse to retrospective recall of subjective psychological and emotional responses, which have the capacity to be impacted by issues with recall bias, and the individual's current emotional/psychological functioning (Southwick, Morgan, Nicolaou, & Charney, 1997). It has also been demonstrated that personally relevant imagery can elicit enhanced realistic psychophysiological responses relative to more generalised imagery (Lang, Levin, Miller, & Kozak, 1983).

Most studies examining responses to trauma-related cues have focused on the differentiation in psychophysiological responses between PTSD and non-PTSD clinical populations (e.g., Pitman et al., 1990). Findings from these studies have typically reported heightened reactivity in individuals diagnosed with Post Traumatic Stress Disorder (PTSD) relative to other anxiety disorders (e.g., Pitman et al., 1990) or non-clinical comparative controls (e.g., Orr, Pitman, Lasko, & Herz, 1993). This is evident across various types of traumatic experiences including combat (e.g., Pitman et al., 1990), childhood sexual abuse (Orr et al., 1998); motor vehicle accidents (Blanchard et al., 1996), terrorist attack and physical assault victims (Shalev, Orr, & Pitman, 1993) and a meta-analysis comprised from prior studies' populations exposed to combat or sexual assault (Pineles et al., 2013). Heightened

psychophysiological responses have also been identified in those indirectly impacted by traumatic events, such as Vietnam nurse veterans who witnessed injury or death (Carson et al., 2000).

Similar patterns of psychophysiological reactivity were reported in a study of 37 breast cancer patients approximately 2 years post diagnosis (Pitman et al., 2001). On the basis of their scores on the Clinically Administered PTSD Scale (CAPS), patients were classified into three PTSD groups: current sufferers, past sufferers and never-suffered. Relative to both past and never-suffered PTSD groups, current PTSD patients demonstrated significantly greater physiological reactivity (heart rate, skin conductance, corrugator electromyogram) during personalised imagery scripts of their breast cancer experiences. Additionally, significant positive correlations were found between CAPS scores and physiological responses, suggesting that the experience of breast cancer as a stressor can be a sufficient catalyst for the development of PTSD in some patients (Pitman et al., 2001) to a degree comparable with other trauma exposed populations (Pitman et al., 1990; Orr et al., 1993; Shalev et al., 1993).

To our knowledge, only one study has included an examination of partners' psychophysiological responses to their loved one's breast cancer experience (Pitman, 1999). Akin to the results from Pitman and colleagues (2001), and from other psychophysiological studies that have investigated PTSD populations (e.g., Orr et al., 1993), Pitman (1999) found that both patients and partners demonstrated heighted physiological responses during personalised imagery scripts of their breast cancer experience. More specifically, current PTSD patients demonstrated significantly heightened responses to the breast cancer imagery on all physiological measures (heart rate, skin conductance, corrugator electromyogram) relative to past

and never-suffered PTSD patient groups. Partners meeting criteria for current or past PTSD classification demonstrated significantly larger skin conductance responses compared to never-suffered PTSD partners, although no statistically significant differences found for heart rate or corrugator electromyogram responses. However, no explanations were provided by Pitman (1999) for the lack of differentiation between partner groups on these latter psychophysiological measures, and the author nonetheless concluded that the breast cancer experience was a significant stressor able to produce "physiologically reactive PTSD" in some patients and their partners (Pitman, 1999, p.2).

An alternate script-driven imagery approach to the imagery methodology predominantly used in psychophysiological studies (e.g., Lang, et al., 1983; Pitman et al., 1990) is the presentation of personalised guided imagery using a chronological approach, whereby the script is administered to the participant across four successive temporal stages. This approach has been demonstrated as an effective method to experimentally assess behaviours typically challenging to measure (Haines et al, 1995). This methodology is distinct from other guide imagery methodologies in that it can facilitate the examination of response patterns during the course of an individual's recall of particular behaviours and events (e.g., Haines et al., 1995). More specifically, this methodology relates solely to the measurement of one's reactivity to the recall of a particular event or behaviour in four, chronological, idiosyncratic stages with the aim of comparing concurrent arousal and emotional states in response to the presented stimuli (e.g., Haines et al., 1995).

It should be noted that diagnosis represents only the confirmation of the commencement of the illness journey. Other events and experiences throughout the course of the illness trajectory also have the capacity to create psychological distress

and challenge for many patients and partners alike. As described in our recent review article (Nutting & Norris, under review) studies exploring psychological responses to the experience of cancer (e.g., Green, Epstein, Krupnick, & Rowland, 1997; Ferrell, Grant, Borneman, Juarez, & terVeer, 1999) testify that cancer survivors and their loved ones consistently report more adverse outcomes, (e.g. distress, fear, and anxiety), not only associated with the initial diagnosis, but with treatment related concerns and concomitant side effects, uncertainty about the future, and fear of recurrence (Matthews, 2003). Moreover, these significant stressors in the illness trajectory have also been identified as likely to elicit a traumatic response (Gurevich, Devins, & Rodin, 2002). Consequently, as these aspects are salient to spouses' experience of their partners' life threatening illness during the peri-traumatic phase of experience, they constitute appropriate stimuli for such illness related imagery employed in studies of this nature. Furthermore, it could be argued that compared to discrete singular traumatic events, a serious illness comprises multiple 'peri-traumatic' reactions experienced by both the patient and partner alike. In this way parallels can be drawn between the trajectory experienced by this population and the methodology extolled by Haines et al. (1995) in measuring psychophysiological responses to stress.

It is plausible that this methodology could extend upon the subjective examination of responses to a loved one's life threatening illness diagnosis by charting the peri-traumatic response throughout the duration of the specific experience. This would enable identification of any overall arousal differences between partners low or high in resilience, as well as allow distinguishing features of response patterns to be observed across chronological stages, such as increases in arousal or recovery processes. The use of multimodal examination of participants'

concomitant subjective psychological and psychophysiological responses is argued to provide a more valid and comprehensive assessment of one's responses to traumatic events (e.g. Griffin, Resick, & Mechanic, 1997). Given the lack of an objective assessment of both resilience and partners' peri-traumatic responses to their loved one's life threatening illness, the current exploratory study aimed to extend upon existing literature by examining both of these aspects using concurrent multiple psychophysiological and psychological methods.

Low resilience and increased vulnerability to enhanced psychophysiological and psychological responses

As mentioned previously, there have been few objective measurements of resilience, particularly physiological measurements with regards to individuals' peri-traumatic reactions to potentially traumatic experiences. However, researchers examining the role of resilience following trauma have reported differential responses between self-reported high and low resilient individuals following a suicide bombing attack (Amital, Amital, Shohat, Soffer, & Bar-Dayan, 2012). A large scale telephone survey study of two representative samples from Dimona (n=250) and Israel (n=428) conducted two days after the 2008 Dimona bombing aimed to compare differences in emotions and daily life disturbances as well as identify patterns of stress development among non-resilient and resilient participants (Amital et al., 2012). Results demonstrated a higher prevalence of daily life activity disturbances, reported psychological experience and re-experiencing of the event, and acute stress reaction symptoms for the low resilient relative to the resilient participants Moreover, higher prevalence of fear and stress, and lower prevalence of hope and joy, were reported by low resilient participants (Amital et al., 2012). The authors, however, offered no explanation as to why these differences in responses

existed between high and low resilient participants. Similarly, a study following the 1999 Kosavo crisis examined the relationship between coping, optimism, and personality on level of resilience in a sample comprising Kosavo refugees, Albanian immigrants living in the US, and Albanians assisting refugees in Albania (Riolli, Savicki, & Cepani, 2002). Results suggested that high resilient individuals were less anxious and emotionally reactive compared to low resilient individuals.

However, whilst these studies have reported differences in emotional and acute stress reactions they have been based on self-report data. It is argued that an examination of concurrent psychophysiological and psychological responses to trauma-related imagery may provide a more objective measurement of resilience, and thereby a more comprehensive understanding of the resilience process. Based on these previous findings, it is postulated that low resilience individuals would demonstrate a greater overall vulnerability to experiencing a higher degree of acute stress reactions and emotional reactivity to trauma-related cues relative to high resilient individuals.

Additionally, considering the aforementioned trajectories of response to trauma (see Figure 1), it could be argued that individuals low in resilience would be at an increased risk of developing psychopathology and poor adaptation outcomes, which may include PTSD or posttraumatic stress symptomatology, relative to those high in resilience. Indeed PTSD has been well established with greater psychophysiological responses in the literature (e.g., Pitman et al., 1990). Thus this may be reflected in the differentiation between high and low resilient individuals' psychophysiological and psychological responses to trauma-related imagery.

Resilience as 'bouncing back' - can this be achieved physiologically?

Some theoretical conceptualisations of resilience suggest an individuals' ability to 'bounce back' efficiently and promptly from adverse experiences (Block & Kremen, 1996; Carver, 1998). Consequently, Tugade and Frederickson (2004) argued that, on the basis of this theoretical perspective, this rebound capacity should also be reflected physiologically in individuals high in resilience. Accordingly, these investigators predicted that high resilient individuals should demonstrate quicker cardiovascular recovery from a stressful event relative to low resilient individuals. Continuous cardiovascular response/reactivity measures (heart rate, systolic and diastolic blood pressure, pulse transmission times to the finger and the ear, and finger pulse amplitude) recorded participants pre, peri, and recovery responses to a stress-induced 60 second speech-preparation task. Findings supported their hypothesis of an inverse relationship between duration of cardiovascular reactivity and level of resilience, suggesting that those participants high in resilience exhibited faster cardiovascular recovery compared participants low in resilience (Tugade & Frederickson, 2004).

The authors suggested that the findings from their study indicated resilience may not be merely a psychological occurrence but may also be predictive of physiological responses to stress (Tugade & Frederickson, 2004). They contend that an individuals' subjective perception of their degree of resilience may be manifested in how their body reacts to stressful or adverse circumstances, which has implications for health psychology research (Tugade & Frederickson, 2004) and further exemplifies the need to conduct resilience research using objective, physiological measures. As detailed, Tugade and Frederickson's (2004) study provided an objective measurement of the theorised prompt return to normal functioning

proposed in resilient individuals. However, the subjects in this study were subjected to a laboratory induced stressor as opposed to actual exposure to a stressful life event or traumatic exposure. Thus, it would be interesting to examine whether their findings extend to individuals who have experienced real life stressful or potentially traumatic experiences, such as the experience of having a significant other with a life threatening illness.

Aim & Hypotheses

The aim of the present study was to examine the influence of partners' level of resilience on their peri-traumatic psychophysiological and subjective psychological responses to illness related events associated with their significant other's life threatening illness.

It was anticipated that partners low in resilience would demonstrate greater psychophysiological and psychological responses to illness-related imagery than partners identified as high in resilience. Additionally, it was hypothesized that partners high in resilience would exhibit significantly faster cardiovascular recovery from stressful illness-related imagery than partners low in resilience, whose psychophysiological arousal levels were expected to persist.

Method

Participants

Initial recruitment. The current study initially recruited 43 partners of individuals who had been diagnosed with, and treated for, a life threatening illness. Participants were recruited from local community and support services, public and private hospitals, medical private practices, media coverage and advertising, and

from poster and web based advertisements at the University of Tasmania, School of Psychology (See Appendix C).

Despite the absence of specified exclusion criteria, 5 volunteers were excluded from the final sample. Two were excluded due to their inability to recall sufficient details about their partner's illness to enable exploration of psychophysiological and psychological responses to imagery to key illness related events. Three did not return to the follow up session to allow assessment materials to be collected and scored and their psychological and psychophysiological responses measured.

The remaining 38 participants comprised the final sample. These participants were allocated to high and low resilience groups on the basis of their scores on the Resilience Scale (Wagnild & Young, 1993).

Participants ages ranged from 33 to 82 with a mean age of 60.7 (*SD* = 11.7). Characteristics of participants as specified by group are presented in Table 1. As demonstrated in Table 1 there were no significant differences between the groups with respect to age. Similarly, there were no significant differences in the proportion of men and women in each group, as shown in Table 1.

Table 1

Participant characteristics per low and high resilience groups (N = 38)

Variable	Level		Group		Analysis
			Low	High	
			% (n)	% (n)	
Sex	Female		75 (12)	54.5 (12)	χ^2 (1, N=38) = 1.7, *p*=.197
	Male		25 (4)	45.5 (10)	
Age		M	58.6	62.3	*t*(36) = -.97, *p*=.340.
		SD	13.0	10.6	

Materials

Apparatus

A PC computer linked to a Powerlab/8S data acquisition system using Chart software was used to measure and record psychophysiological data. Recordings were made at 1mm/s-1 with a sampling frequency of 200 samples/s-1. Electrocardiograph (ECG) measurements were obtained using two adhesive Ag/AgCl electrodes positioned on either side of the torso, along the lateral line, to obtain heart rate. Mean heart rate (HR), measured in beats per minute, was obtained by integrating ECG recordings. A third electrode was placed behind the ear on the mastoid process as the earth reference. A Pneumotrace respiration transducer belt Respiration (RESP) positioned under the arms and around the upper torso measured respiration (RESP). Finally, using a Velcro fastener, a photoelectric Plethysmograph was fastened to the distal phalange of the second finger on the participant's non dominant hand in order to measure finger blood volume (FBV).

Imagery Scripts

Four detailed and personalised imagery scripts, based on interview material, were devised for each participant incorporating the language used by the participant to describe their experiences, emotions felt, and sensory experiences (e.g. sights, sounds, touch, smells). This method of devising the personalised scripts ensured that the emotional content matched participants' personal accounts of their experiences. The neutral script detailed an emotionally neutral event, such as making a cup of coffee. Additional scripts detail each participant's experience of an illness-related event, namely, diagnosis, treatment-related, and fear of recurrence. All scripts were divided into four stages: setting the scene (the environment in which the incident occurred), approach (what happened in the moments leading up to the incident),

incident (a description of the actual event) and the consequence (what occurred immediately after the event).

Visual Analogue Scales (VAS)

Visual analogue scales (McCormack, de Horne, & Sheather, 1988) were administered for each stage of the scripts in order to measure psychological responses to imagery. Additionally, these scales were used as a validity check to determine whether scripts were sufficiently eliciting psychophysiological and psychological reactions. These scales measured the psychological responses of fear, frustration, anxiety, anger, calmness, sadness, helplessness, shock, tension, perceived imminence of death and risk to life. The VASs measured subjective reactions to the imagery on a scale from 0-100, with higher scores indicative of a stronger negative emotional response. In addition, control VASs measured clarity of imagery and the accuracy of script content, with higher scores on these measures indicative of clear imaging and accurate script content.

Procedure

Prior to commencing recruitment for this series of studies using the same sample, ethical approval was gained from both the Social Science and Health and Medical Research Ethics Committees from the University of Tasmania. An information sheet was provided to the participant and informed consent obtained before their participation in the study. In the initial session, participants were interviewed to obtain information regarding their experience of their partners' life threatening illnesses, specifically illness-related events, namely, diagnosis, treatment and fear of symptom recurrence. For comparison purposes participants were also interviewed about an emotionally neutral event, such as making a cup of coffee.

Detailed personalised imagery scripts were formulated from the interview material, incorporating language style and actual words used in the participants' descriptions. Upon commencement of the second session, the investigator attached electrodes, a respiration transducer, and photoelectric plethysmograph to the participant, and provided an explanation regarding the role of each device. The investigator then proceeded to read the personalised imagery scripts while the participant's psychophysiological measures were recorded. Participants were seated throughout the psychophysiological recording and script presentation period. During the verbal administration of the scripts participants were asked to close their eyes and visualise each scene. Each script comprised a 60 sec baseline measure in which participants sat quietly. In accordance with previous studies using this methodology (e.g., Haines et al., 1995) the duration of each script stage was approximately 60 seconds. A 10 second pause occurred in between each script stage, during which participants were instructed to open their eyes and cease visualisation. At the end of each script, participants were asked to complete VASs to record their psychological reactions to each stage of each script. To assist in the completion of the VAS's, and to ensure stage specific ratings, the participant was reminded of the key aspects of each stage. Presentation of scripts was counterbalanced to control for order effects. Prior to administration, each step of the procedure was carefully explicated. Similarly, at the end of each session experimental debriefing was provided to the participant.

Psychophysiological Data Transformation and Scoring

Data was extracted from a 30 second period of each stage of each script, and baseline for each script, typically selected from approximately 15-20 seconds into each script stage. This specified time period was applied to provide ample opportunity for the participant to initiate visualisation of the presented imagery and

to ensure the accuracy of between subject comparisons. Respiration (RESP) was measured in breaths per minute and heart rate (HR) was calculated into beats per minute (BPM) from electrocardiograph (ECG) measurements. The degree of reactivity to script imagery was determined by comparing the baseline score and the means obtained from the scoring period of each stage of each script for both RESP and HR. Finger blood volume (FBV) scores reflect changes from baseline measures, as the mean score per stage is less meaningful than the direction of blood volume change for this measure (Stern, Ray, & Davis, 1980). The scoring methods utilised in the current study have been shown to have adequate validity, as demonstrated by previous research (Haines et al, 1995).

Design

The present study employed a 2[Group: low resilience, high resilience] x 4(Script: diagnosis, treatment related, fear of recurrence, neutral) x 4(Script Stage: scene, approach, incident, consequence) mixed factorial design with repeated measures. Group is the between subjects factor and script and stage are the within subjects factors. The dependent variables were psychophysiological arousal and psychological responses to script content.

Data Analysis

Repeated measures ANOVAs with Huynh-Feldt corrections were applied to demonstrate main effects or interactions. Significant main effects were followed up by Fisher LSD post hocs. An alpha level of 0.05 was used for all statistical procedures.

Results

Description of the sample

Comparisons between groups with regards to patients' illness related data are presented in Table 2.

Table 2

Descriptive factors associated with patients' illness for Low Resilience and High Resilience groups.

Variable	Level	Group		Analysis
		Low % (n)	High % (n)	
Prior Symptoms	Nil	31.3 (5)	9.1 (2)	χ^2 (5, N = 38)=4.4, *p*=.493
	<1mth	12.5 (2)	22.7 (5)	
	1-5mths	31.3 (5)	45.5 (10)	
	6-11mths	18.8 (3)	13.6 (3)	
	1yr	0 (0)	4.5 (1)	
	>1yr	6.3 (1)	4.5 (1)	
Time since diagnosis	1-5mths	6.3 (1)	22.7 (5)	χ^2 (3, N = 38)=2.5, *p*=.480
	6-11mths	12.5 (2)	9.1 (2)	
	1yr	12.5 (2)	4.5 (1)	
	>1yr	68.8 (11)	63.6 (14)	
Time between diagnosis & treatment	Nil	12.5 (2)	13.6 (3)	χ^2 (3, N = 38)=1.7, *p*=.640
	<1mth	43.8 (7)	54.5 (12)	
	1-5mths	43.8 (7)	27.3 (6)	

	6-11mths	0 (0)	4.5 (1)	
Illness Type	Cardiovascular	12.5 (2)	0 (0)	$\chi^2(13, N = 38)=17.6, p=.287$
	Prostate cancer	18.8 (3)	9.1 (2)	
	Lymphoma	18.8 (3)	9.1 (2)	
	Skin Cancer	0 (0)	4.5 (1)	
	Bone Cancer	0 (0)	4.5 (1)	
	Breast Cancer	6.3 (1)	9.1 (2)	
	Carcinoma	6.3 (1)	4.5 (1)	
	Testicular Cancer	12.5 (2)	0 (0)	
	Oesophageal Cancer	18.8 (3)	4.5 (1)	
	Gynaecological cancers	0 (0)	9.1(1)	
	Pancreatic cancer	0 (0)	4.5 (1)	
	Bowel Cancer	6.3 (1)	9.1 (2)	
	Leukaemia	0 (0)	27.3 (6)	
	Mesothelioma	0 (0)	9.1 (2)	
Treatment type	Surgery	37.5 (6)	4.5 (1)	χ^2 (7, N = 38)=10.6, p=.157
	Chemotherapy	18.8 (3)	18.2 (4)	
	Hormone Therapy	0 (0)	4.5 (1)	
	Pharmacotherapy	0 (0)	4.5 (1)	
	Induced Coma	6.3 (1)	0 (0)	
	Infusion	0 (0)	4.5 (1)	
	Transplant	0 (0)	4.5 (1)	

	Combination of therapies	37.5 (6)	59.1 (13)	
Treatment successful?	Yes	62.5 (10)	40.9 (9)	χ^2 (3, N = 38)=5.9, *p*=.116
	No	18.8 (3)	4.5 (1)	
	Ongoing	12.5 (2)	45.5 (10)	
	Unsure	6.3 (1)	9.1 (2)	
Recurrence	Yes	6.3 (1)	31.8 (7)	χ^2 (2, N = 38)=8.8, *p* =.012*
	No	75.0 (12)	27.3 (6)	
	N/A	18.8 (3)	40.9 (9)	

= $p < .05$

As demonstrated in Table 2 there were no significant differences in the proportion between groups of reported patients' illness factors such as prior symptoms, time since diagnosis, time between diagnosis and treatment, illness type, treatment type, and treatment success. However, the proportion of recurrence reported for patients illness between groups differed significantly. From the partners that reported recurrence of the patients' illness, 6.3% were from the low resilience group and 31.8% from the high resilience group. No recurrence of patients' illness was reported by 75% of the low resilience and 27.3% of the high resilience groups. Finally, 18.8% for the low resilient group and 40.9% for the high resilience group reported recurrence was not a factor due to their loved one's still receiving treatment.

Psychophysiological response to imagery

Visual analogue scales assessed the subjective clarity of the participants' imagery (scene not clear – scene clear) and accuracy of the script content (scene not close – scene close), and mean scores were found to be within the positive range,

indicating participants' high ratings of both accuracy of the personalised imagery scripts and vividness of imagery. These ratings were within acceptable limits. Means and standard deviations for the control dimensions are presented in Appendix D.

Respiration, finger blood volume, and heart rate

Results of ANOVA analyses for finger blood volume, respiration rate and heart rate are presented in Table 3.

Table 3

ANOVA results for the measures of FBV, Respiration rate, and Heart rate (N=38)

Measure	Effect	df	*F*	MSE	*p*
FBV					
	Group	1, 36	.03	.00	.863
	Script	2, 72	1.00	.03	.372
	Stage	3, 108	1.43	.02	.242
	Script*Stage	6, 216	.65	.02	.601
	Script*Stage*Group	6, 216	.51	.02	.701
	Script*Group	2, 72	.22	.01	.807
	Stage*Group	3, 108	1.36	.02	.260
Resp					
	Group	1, 36	.80	87.52	.376
	Script	2, 72	.36	1.93	.698
	Stage	3, 108	.10	2.53	.398
	Script*Stage	6, 216	.81	2.78	.547
	Script*Stage*Group	6, 216	.53	1.81	.761
	Script*Group	2, 72	.64	3.41	.531
	Stage*Group	3, 108	.26	.65	.858
HR					
	Group	1, 36	.44	738.44	.510
	Script	2, 72	11.35	333.60	<.001
	Stage	3, 108	2.74	21.87	.067
	Script*Stage	6, 216	1.01	5.69	.416
	Script*Stage*Group	6, 216	.46	2.58	.809
	Script*Group	2, 72	.03	1.01	.966
	Stage*Group	3, 108	.98	7.79	.387

As demonstrated in Table 3, both finger blood volume (FBV) and respiration rate demonstrated no significant differences, main effects, or interactions between groups on psychophysiological measures for both ANOVA analyses.

Interestingly, no significant interactions or group differences in heart rate were found between the low and high resilience groups. As anticipated, the validity check was supported as results demonstrated a significant main effect for Script, $F(2,72) = 11.4$, $p<.0001$, with the diagnoses (g=0.20) and treatment (g=0.22) scripts eliciting a significantly higher heart rate than the neutral event. Means, standard deviations, and 95% confidence intervals for FBV, respiration rate, and heart rate for each script and stage are presented in Appendix E.

Due to the lack of significant between group differences the data was collapsed across groups.

Psychological responses to imagery

The psychological responses to imagery comprised: anxiety, anger, fear, frustration, sadness, shock, calmness, tension, helplessness, and belief that their loved one's death was imminent (PDI). To ascertain any between group differences in participants subjective psychological responses to imagery, each of the 10 VAS's were subjected to separate ANOVAs. Results from these analyses are presented in Table 4. Means, standard deviations, and 95% confidence intervals for Psychological Responses for each Script and Stage are presented in Appendix F.

Table 4

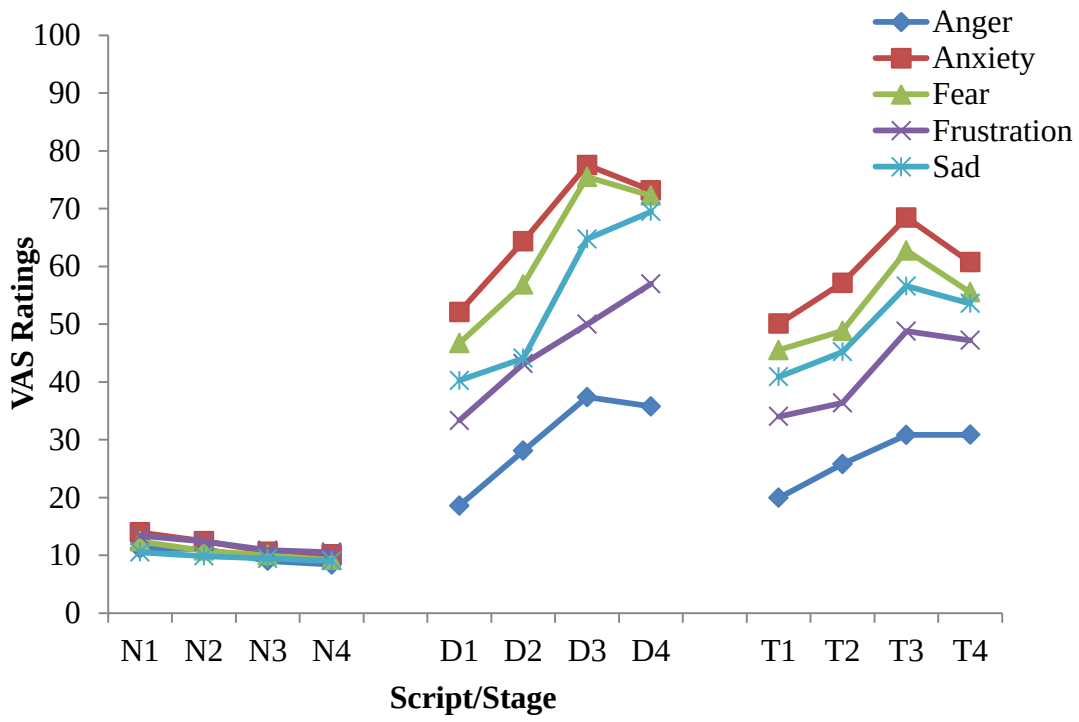
ANOVA results for psychological responses to imagery (VAS items) (N=38)

VAS Item	Effect	df	*F*	MSE	*p*
Anger					
	Group	1, 15	5.20	13734.31	.04
	Script	3, 45	3.42	3858.24	.03
	Stage	3, 45	3.13	782.50	.04
	Script*Stage	9, 135	1.54	354.08	.15
	Script*Stage*Group	9, 135	.96	220.47	.47
	Script*Group	3, 45	1.31	1472.53	.29
	Stage*Group	3, 45	4.73	1182.66	.01*
Anxiety					
	Group	1, 15	2.98	15436.80	.11
	Script	3, 45	31.84	39451.82	<.001
	Stage	3, 45	10.04	4701.53	<.001
	Script*Stage	9, 135	4.84	1009.21	<.001
	Script*Stage*Group	9, 135	.59	123.31	.77
	Script*Group	3, 45	1.96	2432.77	.13
	Stage*Group	3, 45	.90	418.98	.43
Fear					
	Group	1, 15	1.61	9807.37	.22
	Script	3, 45	27.74	35650.33	<.001
	Stage	3, 45	15.85	4007.39	<.001
	Script*Stage	9, 135	3.46	1011.94	.001
	Script*Stage*Group	9, 135	.83	242.43	.58
	Script*Group	3, 45	1.35	1740.55	.27
	Stage*Group	3, 45	2.62	669.97	.06
Frustrated					
	Group	1, 15	2.37	14968.59	.15
	Script	3, 45	14.85	15057.76	<.001
	Stage	3, 45	9.67	3734.42	<.001
	Script*Stage	9, 135	2.78	937.92	.01
	Script*Stage*Group	9, 135	1.33	450.79	.24

	Script*Group	3, 45	2.05	2079.92	.12
	Stage*Group	3, 45	8.35	3225.04	<.001
Sad					
	Group	1, 15	2.39	11282.97	.14
	Script	3, 45	21.47	33244.85	<.001
	Stage	3, 45	9.30	4310.52	<.001
	Script*Stage	9, 135	1.76	897.45	.12
	Script*Stage*Group	9, 135	.76	386.87	.61
	Script*Group	3, 45	1.09	1691.58	.36
	Stage*Group	3, 45	4.21	1950.62	.02
Shocked					
	Group	1, 15	1.03	4873.67	.33
	Script	3, 45	16.07	21215.64	<.001
	Stage	3, 45	14.63	7720.84	<.001
	Script*Stage	9, 135	3.76	1707.94	.002
	Script*Stage*Group	9, 135	.85	383.86	.54
	Script*Group	3, 45	.26	338.09	.86
	Stage*Group	3, 45	3.11	1639.57	.05
Tension					
	Group	1, 15	1.78	9265.31	.20
	Script	3, 45	34.60	41364.44	<.001
	Stage	3, 45	10.93	5319.19	<.001
	Script*Stage	9, 135	2.51	1197.58	.03
	Script*Stage*Group	9, 135	.73	348.95	.61
	Script*Group	3, 45	1.79	2133.44	.16
	Stage*Group	3, 45	2.67	1301.17	.08
Calm					
	Group	1, 15	2.65	9876.39	.12
	Script	3, 45	25.94	32196.00	<.001
	Stage	3, 45	9.85	3286.34	<.001
	Script*Stage	9, 135	2.77	892.75	.01
	Script*Stage*Group	9, 135	.77	246.42	.65
	Script*Group	3, 45	2.06	2561.70	.12
	Stage*Group	3, 45	2.37	790.70	.10
Helpless					
	Group	1, 15	.81	3678.58	.38

	Script	3, 45	25.17	30934.80	<.001
	Stage	3, 45	11.50	3335.43	<.001
	Script*Stage	9, 135	2.68	924.48	.01
	Script*Stage*Group	9, 135	.54	187.32	.84
	Script*Group	3, 45	.97	1193.76	.42
	Stage*Group	3, 45	1.71	496.68	.18
PDI					
	Group	1, 15	.01	41.60	.94
	Script	3, 45	10.29	11250.20	<.001
	Stage	3, 45	11.56	6177.38	.001
	Script*Stage	9, 135	5.94	1710.91	<.001
	Script*Stage*Group	9, 135	.75	216.34	.59
	Script*Group	3, 45	.80	875.57	.50
	Stage*Group	3, 45	1.98	1060.87	.17

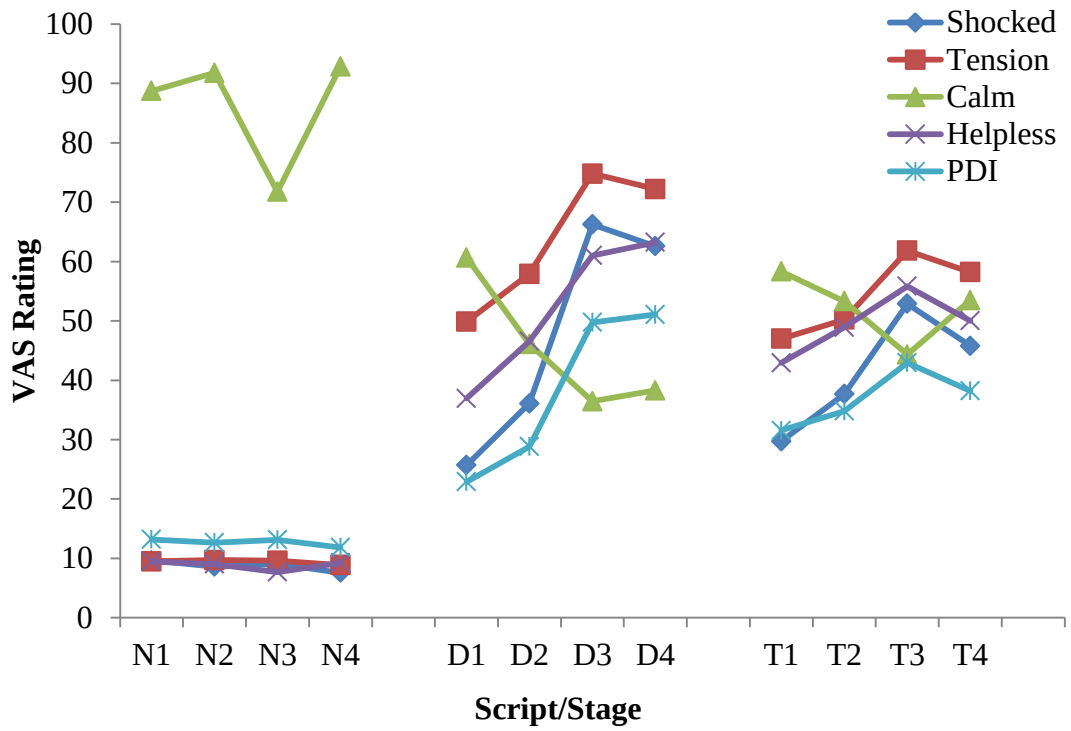
As demonstrated in Table 4 Stage x script x group analyses found no significant differences between the low and high resilience groups in psychological responses to imagery. Consideration was then given to Script x Stage interactions. Significant Script x Stage interactions were observed for anger, anxiety, fear, frustration, and sadness. These interactions are presented in Figure 2.



Note: *N refers to the Neutral script, D the diagnosis script, T to the treatment script and F the fear of recurrence script. Each number corresponds to the stages of the imagery script: 1= setting the scene, 2=approach, 3=incident, and 4=consequence.*

Figure 2. Mean Ratings for anger, anxiety, fear, frustration, and sad for each stage of each script.

In addition, Table 4 shows the script x stage interactions observed for shock, tension, calmness, helplessness, and PDI. These interactions are shown in Figure 3.



***Note**: PDI refers to VAS rating of Partners' Death Imminent. N refers to the Neutral script, D to the diagnosis script, and T to the treatment script. Each number corresponds to the stages of the imagery script: 1= setting the scene, 2=approach, 3=incident, and 4=consequence.*

Figure 3. Mean Ratings for shocked, tension, calm, helpless, and PDI for each stage of each script.

Script differences at each stage were then considered. Akin to the psychophysiological validity check results, all psychological responses to the neutral script were significantly lower than the diagnosis and treatment scripts at all script stages. These results provide further validation for the capacity for the illness scripts to elicit greater negative psychological responses to imagery. Remaining significant results from post hoc comparisons of psychological responses to imagery between scripts at each stage are presented in Table 5.

Table 5

Post hoc analysis results for script differences at each stage for VAS items for low and high resilience groups (n=38).

VAS Item	Script Stage	df	*F*	*p*	Fisher's LSD	Differences
Anxiety						
	Incident	2, 74	146.6	<.0001	8.4	D,T>N; D>T
	Consequences	2, 74	101.2	<.0001	9.3	D,T>N; D>T
Fear						
	Incident	2, 74	98.5	<.0001	9.8	D,T>N; D>T
	Consequences	2, 74	83.0	<.0001	10.1	D,T>N; D>T
Sad						
	Consequences	2, 74	65.6	<.0001	10.9	D,T>N; D>T
Shocked						
	Incident	2, 74	60.2	<.0001	10.9	D,T>N; D>T
	Consequences	2, 74	51.9	<.0001	11.0	D,T>N; D>T
Tension						
	Incident	2, 74	108.4	<.0001	9.3	D,T>N; D>T
	Consequences	2, 74	97.5	<.0001	9.5	D,T>N; D>T
Calm						
	Consequences	2, 74	60.1	<.0001	10.2	N>D,T; D<T
Helpless						
	Consequences	2, 74	53.9	<.0001	10.8	D,T>N; D>T
PDI	Scene	2, 74	9.7	<.0002	8.3	D,T>N; D<T
	Consequences	2, 74	25.1	<.0001	11.2	D,T>N; D>T

Post hocs revealed that the incidence and consequences stages of the diagnoses script elicited more negative responses than the treatment script for anxiety, fear, shock, and tension. Moreover, at the consequence stage, the diagnosis script elicited greater negative responses for sadness, helplessness, and perceived imminence of partners' death (PDI) and significantly lower ratings of calm than the treatment script. Finally the diagnosis script elicited significantly lower responses for

PDI than the treatment script at the scene stage.

Across stage differences in psychological responses to imagery for each script were then considered, with post hoc analysis results presented in Table 6.

Table 6

Post hoc analysis results for across stage changes for each script for the high and low resilience groups (N=38).

VAS Item	Script	df	*F*	*p*	Fisher's LSD	Differences
Anger						
	Diagnosis	3, 111	7.6	<.0001	8.7	1<2,3,4; 2<3
	Treatment	3, 111	5.6	<.002	6.1	1<3,4
Anxiety						
	Diagnosis	3, 111	18.1	<.0001	7.4	1<2; 1,2<3,4
	Treatment	3, 111	7.1	<.0002	8.0	1,2<3; 1<4
Fear						
	Diagnosis	3, 111	22.8	<.0001	7.9	1<2,3,4; 2<3,4
	Treatment	3, 111	5.4	<.002	9.3	1,2<3,4
Frustrated						
	Diagnosis	3, 111	10.8	<.0001	9.1	1<2,3,4; 2<4
	Treatment	3, 111	6.3	<.0006	8.5	1,2<3,4
Sad						
	Diagnosis	3, 111	13.7	<.0001	11.1	1,2<3,4
	Treatment	3, 111	6.0	<.0008	8.3	1,2<3,4
Shocked						
	Diagnosis	3, 111	29.1	<.0001	10.3	1<2,3,4; 2<3,4
	Treatment	3, 111	10.3	<.0001	8.7	1<3,4; 2<3
Tension						
	Diagnosis	3, 111	13.0	<.0001	9.2	1,2<3,4
	Treatment	3, 111	5.4	<.002	8.1	1<3,4; 2<3
Calm						
	Diagnosis	3, 111	12.5	<.0001	8.7	1>2,3,4; 2>3
	Treatment	3, 111	3.6	<.02	8.6	3>1,2,4
Helpless						
	Diagnosis	3, 111	16.9	<.0001	8.4	1<2,3,4; 2<3,4
	Treatment	3, 111	4.0	<.009	7.4	1<3
PDI						
	Diagnosis	3, 111	22.5	<.0001	8.5	1,2<3,4
	Treatment	3, 111	4.3	<.007	6.6	1<3,4; 2<3

No significant across stages differences were found for the neutral script for any of the VAS items.

When consecutive stage differences were considered, ratings for anger, fear, shock, frustration, and helplessness demonstrated significant increases between the scene and all following stages for the diagnosis script. Similarly, the ratings of helplessness, shock, and fear for the diagnosis script also demonstrated significant increases between the approach and both following stages. Additionally, ratings for calm significantly decreased between the approach and incident stage and between the scene stage and all following stages respectively.

Both incident and consequences stages were found to elicit significantly greater psychological responses than both the scene and approach stages in the diagnosis script for anxiety, tension and PDI, in the treatment script for fear and frustration, and for sadness in both the diagnosis and treatment scripts. These results support the validity of the methodology to demonstrate the influence of the crucial aspect of the event (e.g., being told of the diagnosis) and its immediate aftermath on partners' psychophysiological functioning, and enables examination of patterns of change across a partners' peri-traumatic responses to these events.

Whilst the scene stage of the treatment script elicited significantly lower ratings of shock, tension, and PDI compared to the incident and consequence stages, these psychological responses were found significantly lower for approach relative to the incident stage only. The treatment script was also found to elicit significantly more anxiety at the incident than the scene and approach stages, and significantly more anxiety at the consequence than the scene stage respectively. Furthermore, the incident stage of treatment script elicited greater ratings of helplessness compared to the scene stage. Finally, the diagnosis script elicited significantly greater anger and

frustration at the incident and consequence stages respectively relative to the approach stage.

Analyses 2- Fear of Recurrence (n = 17)

As the fear of recurrence script was not pertinent to all participants (n=38), separate repeated measures ANOVAs with Huynh-Feldt corrections, and Fisher's LSD post-hoc tests, were conducted for the subset of participants (n=17) for which fear of recurrence scripts were applicable.

Psychophysiological response to imagery

Respiration, finger blood volume, and heart rate

Results of ANOVA analyses for finger blood volume, respiration rate and heart rate are presented in Table 7.

Table 7

ANOVA results for the measures of FBV, Respiration rate, and Heart rate (n=17)

Measure	Effect	df	*F*	MSE	*p*
FBV					
	Group	1, 15	1.82	.15	.197
	Script	3, 45	.27	.01	.762
	Stage	3, 45	.54	.01	.587
	Script*Stage	9, 135	.75	.03	.546
	Script*Stage*Group	9, 135	.77	.03	.530
	Script*Group	3, 45	1.91	.08	.166
	Stage*Group	3, 45	2.49	.05	.100
Resp					
	Group	1, 15	2.56	362.32	.130
	Script	3, 45	2.26	10.63	.094
	Stage	3, 45	.04	.10	.986
	Script*Stage	9, 135	1.20	3.62	.307
	Script*Stage*Group	9, 135	.59	1.79	.307
	Script*Group	3, 45	.32	1.52	.809
	Stage*Group	3, 45	.19	.42	.897
HR					
	Group	1, 15	4.54	1702.01	.049
	Script	3, 45	5.67	165.54	.002
	Stage	3, 45	5.22	19.01	.006
	Script*Stage	9, 135	.58	4.35	.687
	Script*Stage*Group	9, 135	.58	4.37	.633
	Script*Group	3, 45	.57	16.66	.637
	Stage*Group	3, 45	3.1	11.31	.046

As shown in Table 7, both finger blood volume (FBV) and respiration rate demonstrated no significant differences, main effects, or interactions between groups on psychophysiological measures for both ANOVA analyses.

When participants who experienced fear of recurrence were considered (n=17), no significant Script x Stage x Group interactions, or Script x Stage interactions, were found for heart rate. There was, however, a significant main effect of Script. Post-hocs revealed, heart rate for the Neutral script was significantly lower than for the Diagnosis (g=0.35), and Treatment (g=0.27) conditions, though not the Fear of Recurrence scripts.

There was also a significant main effect of Stage. Post-hocs revealed heart rate for the Consequence stage was significantly higher than for the Scene (g=0.11), and Approach (g=0.07) stages, though not the Incident stage. Against expectations, a significant main effect was observed for Group, with heart rate for the High Resilience group significantly higher than for the low resilience group (g=1.12). However, these two main effects are subsumed by a significant Stage by Group interaction. Post-hocs revealed heart rate for the Low resilience group did not significantly differ across script stages. However, heart rate for the Consequence stage was significantly higher than for the Scene (g=0.13), and Approach (g=0.07) stages for the High Resilience group. These results are shown in Figure 4. These differences, while statistically significant however, are small in effect size and thus are not meaningful. Means, standard deviations, and 95% confidence intervals for FBV, respiration rate, and heart rate for each script and stage are presented in Appendix G.

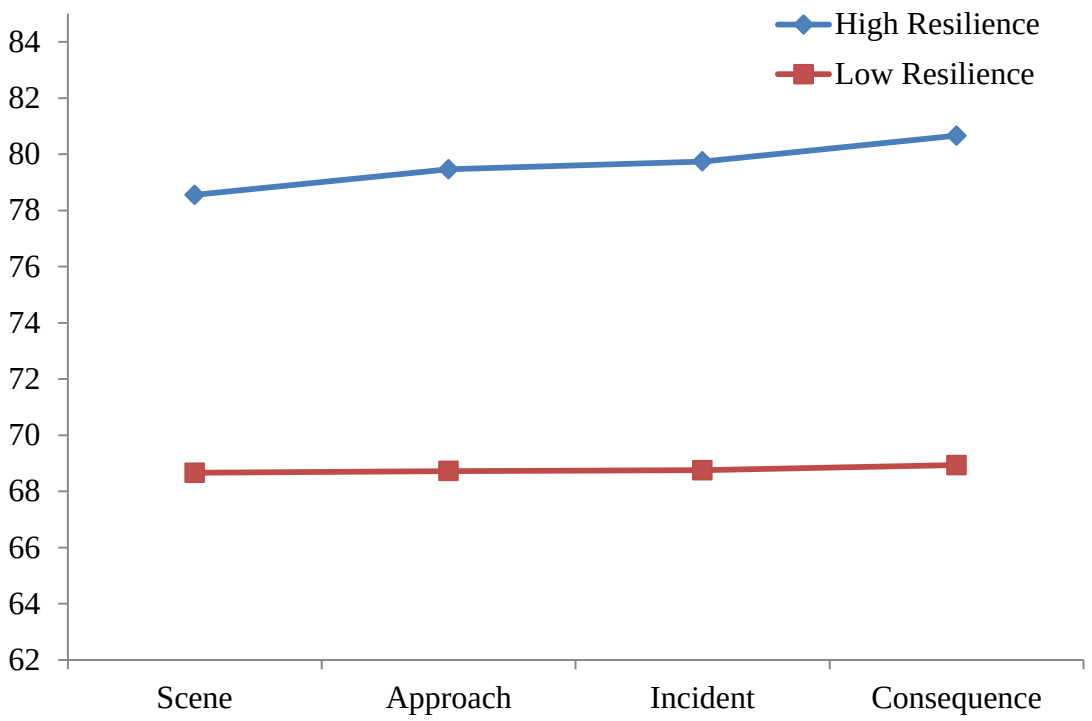


Figure 4. Mean Heart rate for high and low resilience groups across script stages (n=17)

Psychological responses to imagery

Results from ANOVA analyses of partners' psychological responses to imagery are presented in Table 8.

Table 8

ANOVA results for psychological responses to imagery (VAS items) (n=17)

VAS Item	Effect	df	*F*	MSE	*p*
Anger					
	Group	1, 36	.38	840.63	.54
	Script	2, 72	15.08	16300.41	<.001
	Stage	3, 108	8.26	2551.40	<.001
	Script*Stage	6, 216	5.95	1378.62	<.001
	Script*Stage*Group	6, 216	.76	176.62	.57
	Script*Group	2, 72	.76	819.02	.47
	Stage*Group	3, 108	.27	83.79	.80
Anxiety					
	Group	1, 36	1.31	4522.90	.26
	Script	2, 72	104.07	125502.90	<.001
	Stage	3, 108	14.55	5870.52	<.001
	Script*Stage	6, 216	10.52	2440.25	<.001
	Script*Stage*Group	6, 216	1.28	296.04	.28
	Script*Group	2, 72	2.32	2801.46	.11
	Stage*Group	3, 108	.78	312.96	.46
Fear					
	Group	1, 36	.67	2500.01	.42
	Script	2, 72	79.64	109302.09	<.001
	Stage	3, 108	18.77	6212.65	<.001
	Script*Stage	6, 216	9.29	2917.93	<.001
	Script*Stage*Group	6, 216	.58	181.50	.70
	Script*Group	2, 72	1.70	2332.49	.19
	Stage*Group	3, 108	.80	264.55	.47
Frustrated					
	Group	1, 36	.22	825.36	.65
	Script	2, 72	45.21	49199.69	<.001
	Stage	3, 108	9.33	4526.60	<.001
	Script*Stage	6, 216	6.38	1871.42	<.001
	Script*Stage*Group	6, 216	.37	107.75	.86

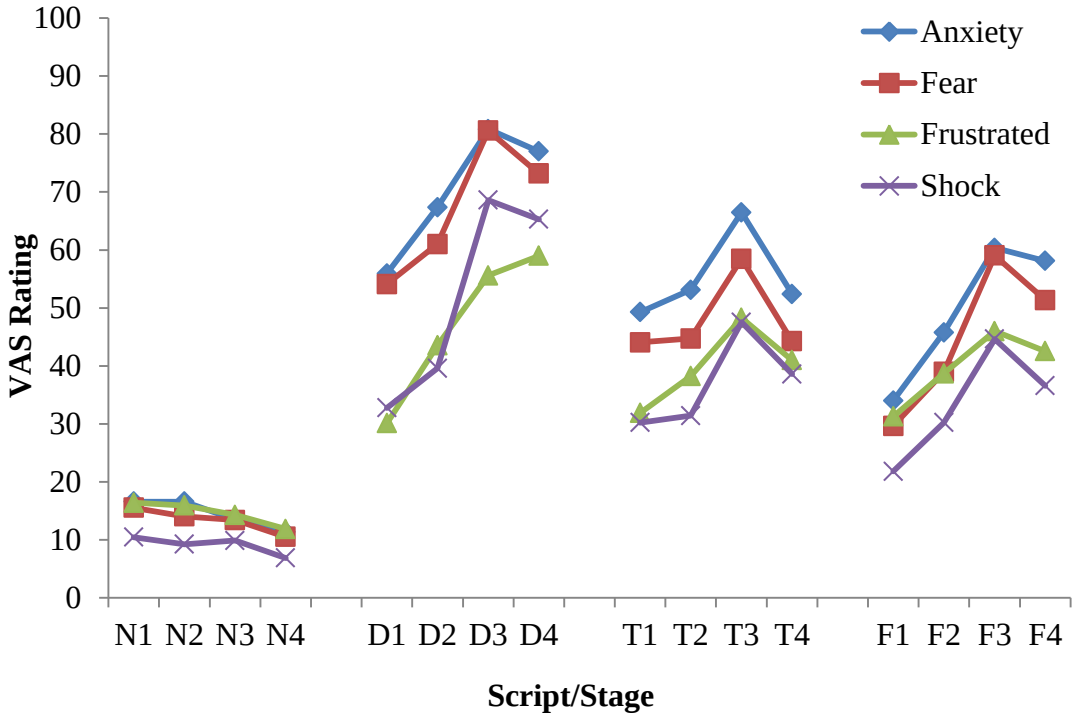
	Script*Group	2, 72	1.11	1203.56	.34
	Stage*Group	3, 108	.07	34.44	.93
Sad					
	Group	1, 36	.34	1016.91	.56
	Script	2, 72	58.76	88308.02	<.001
	Stage	3, 108	15.10	7622.44	<.001
	Script*Stage	6, 216	7.02	2767.23	<.001
	Script*Stage*Group	6, 216	1.92	757.98	.10
	Script*Group	2, 72	1.38	2073.10	.26
	Stage*Group	3, 108	.86	432.19	.43
Shocked					
	Group	1, 36	.09	220.86	.77
	Script	2, 72	50.80	64255.37	<.001
	Stage	3, 108	25.59	16056.25	<.001
	Script*Stage	6, 216	14.35	5639.05	<.001
	Script*Stage*Group	6, 216	.56	219.64	.70
	Script*Group	2, 72	.15	188.18	.87
	Stage*Group	3, 108	.59	333.07	.55
Tension					
	Group	1, 36	.50	1626.55	.48
	Script	2, 72	95.08	120639.52	<.001
	Stage	3, 108	14.70	6114.76	<.001
	Script*Stage	6, 216	5.98	2358.33	<.001
	Script*Stage*Group	6, 216	.29	116.14	.86
	Script*Group	2, 72	1.13	1431.67	.33
	Stage*Group	3, 108	.88	363.95	.43
Calm					
	Group	1, 36	.16	457.35	.69
	Script	2, 72	77.59	88106.21	<.001
	Stage	3, 108	10.55	3404.34	<.001
	Script*Stage	6, 216	6.73	2270.23	<.001
	Script*Stage*Group	6, 216	.74	248.81	.59
	Script*Group	2, 72	1.16	1311.79	.32
	Stage*Group	3, 108	.83	268.00	.46
Helpless					
	Group	1, 36	.03	87.89	.87

	Script	2, 72	64.88	85590.23	<.001
	Stage	3, 108	15.22	4388.20	<.001
	Script*Stage	6, 216	8.14	2192.81	<.001
	Script*Stage*Group	6, 216	.31	82.20	.91
	Script*Group	2, 72	.39	509.89	.68
	Stage*Group	3, 108	.93	268.35	.42
PDI					
	Group	1, 36	.97	4595.03	.33
	Script	2, 72	22.25	32356.17	<.001
	Stage	3, 108	19.73	8274.19	<.001
	Script*Stage	6, 216	13.41	4089.29	<.001
	Script*Stage*Group	6, 216	.77	233.53	.53
	Script*Group	2, 72	1.66	2416.05	.20
	Stage*Group	3, 108	1.30	544.12	.28

As shown in Table 8 Stage x script x group analyses demonstrated no significant differences between the low and high resilience groups in psychological responses to imagery.

Consideration was then given to Script x Stage interactions. Whilst no significant Script x Stage interactions were observed for sad or anger, there was a significant main effect of Script for anger, whereby ratings were significantly greater for the diagnosis and treatment scripts than the neutral script. Additionally, a significant main effect was observed for sad, demonstrating that the diagnosis, treatment, and recurrence script elicited greater ratings of sad than the neutral script. Similarly, the diagnosis script elicited greater ratings of sad than the treatment and recurrence scripts.

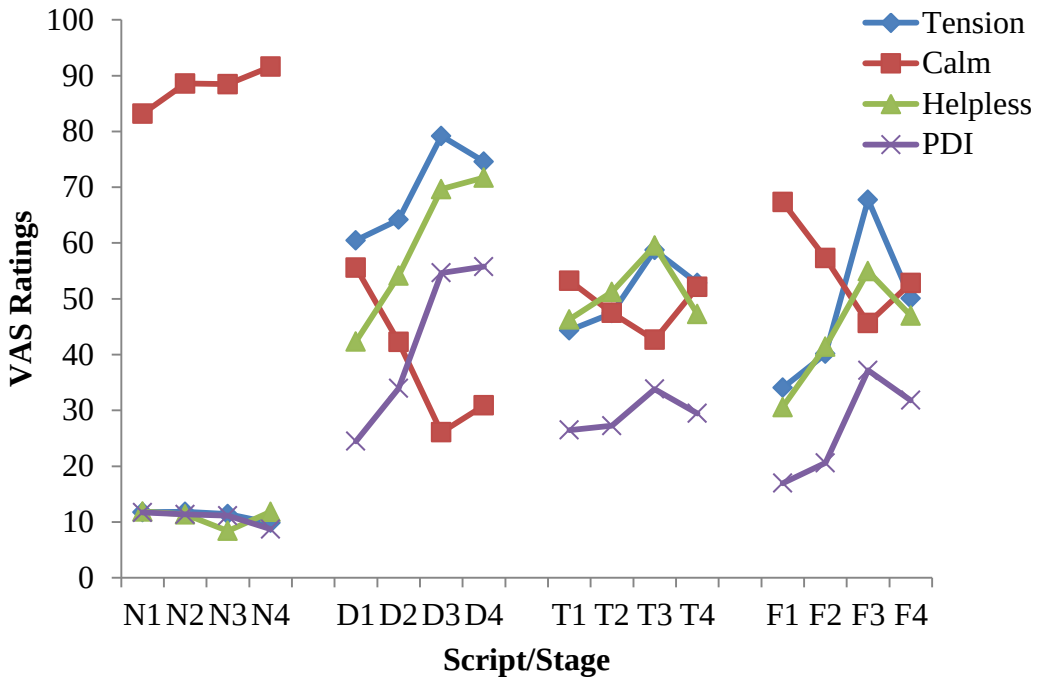
Significant Script x Stage interactions were observed for anxiety, fear, frustration, and shock. These interactions are presented in Figure 5.



***Note**: N refers to the Neutral script, D to the diagnosis script, T to the treatment script and F to the fear of recurrence script. Each number corresponds to the stages of the imagery script: 1= setting the scene, 2=approach , 3=incident, and 4=consequence.*

*Figure 5***.** Mean Ratings for anxiety, fear, frustration, and shock for each stage of each script.

In addition, script x stage interactions were also observed for tension, calmness, helplessness, and partner's death imminent. These interactions are shown in Figure 6. Means, standard deviations, and 95% confidence intervals for Psychological Responses for each Script and Stage are presented in Appendix H



***Note**: PDI refers to VAS rating of Partners' Death Imminent. N refers to the Neutral script, D to the diagnosis script, T to the treatment script and F to the fear of recurrence script. Each number corresponds to the stages of the imagery script: 1= setting the scene, 2=approach , 3=incident, and 4=consequence.*

*Figure 6***.** Mean Ratings for tension, calm, helpless, and PDI for each stage of each script.

Consideration was given to script differences at each stage. These Post hoc comparisons of psychological responses to imagery between scripts at each stage are presented in Table 9.

Table 9

Post hoc analysis results for script differences at each stage for VAS items for Low and High Resilience groups including fear of recurrence script (n=17).

VAS Item	Script Stage	df	*F*	*p*	Fisher's LSD	Differences
Anxiety	Scene	3, 48	8.0	<.0002	17.6	D,T>N; D<R
	Approach	3, 48	15.9	<.0001	15.2	D,T,R>N; D>R
	Incident	3, 48	41.8	<.0001	12.8	D,T>N; D>T,R
	Consequences	3, 48	38.3	<.0001	12.7	D,T,R>N; D>T,R
Fear	Scene	3, 48	8.5	<.0001	16.4	N<D,T; D<T
	Approach	3, 48	13.4	<.0001	15.1	D,T,R>N; D>T,R
	Incident	3, 48	25.8	<.0001	15.8	D,T,R>N; D>T,R
	Consequences	3, 48	24.6	<.0001	14.9	D,T,R>N; D>T,R
Frustrated	Scene	3, 48	1.9	>.05		
	Approach	3, 48	5.2	<.004	15.4	D,T,R>N
	Incident	3, 48	13.7	<.0001	14.8	D,T,R>N
	Consequences	3, 48	14.5	<.0001	14.6	D,T,R>N; D>T,R
Shocked	Scene	3, 48	2.5	>.05		
	Approach	3, 48	5.7	<.003	15.1	D,T,R>N
	Incident	3, 48	16.6	<.0001	16.4	D,T,R>N; D>T,R
	Consequences	3, 48	15.8	<.0001	16.4	D,T,R>N; D>T,R
Tension	Scene	3, 48	11.2	<.0001	17.3	D,T,R>N; D>R
	Approach	3, 48	17.2	<.0001	15.0	D,T,R>N; D>T,R
	Incident	3, 48	27.5	<.0001	16.1	D,T,R>N; D>T
	Consequences	3, 48	28.8	<.0001	14.3	D,T,R>N; D>T,R
Calm	Scene	3, 48	3.8	<.02	20.0	N>D,T
	Approach	3, 48	13.9	<.0001	15.8	N>D,T,R
	Incident	3, 48	28.6	<.0001	14.2	N>D,T,R; D<T,R
	Consequences	3, 48	22.4	<.0001	15.2	N>D,T,R; D<T,R

Helpless	Scene	3, 48	5.4	<.003	18.9	N<D,T
	Approach	3, 48	13.7	<.0001	15.0	D,T,R>N
	Incident	3, 48	28.8	<.0001	14.4	D,T,R>N; D>R
	Consequences	3, 48	18.3	<.0001	16.4	D,T,R>N; D>T,R
PDI	Scene	3, 48	3.6	<.03	10.2	N<D,T
	Approach	3, 48	4.7	<.006	12.6	N<D,T; D>R
	Incident	3, 48	11.5	<.0001	15.0	N<D,T; D>T,R
	Consequences	3, 48	11.7	<.0001	16.0	N<D,T; D>T,R

Validity check results were again supported, with the exception of the ratings for calm and the scene stage for shock, as the neutral script elicited significantly lower ratings on all psychological responses to imagery at all stages of the diagnosis and treatment scripts. Similarly, the neutral script elicited significantly lower VAS ratings than the recurrence script at the approach stage for anxiety, fear, tension, and helplessness; at the incident stage for fear, frustration, shock, tension, and helplessness; and at the consequence stage for anxiety, fear, frustration, shock, tension, and helplessness.

When ratings of calm were considered, the neutral script elicited greater levels of calm than both diagnosis and treatment scripts at all stages. However, relative to the fear of recurrence script, the neutral script elicited significantly higher levels of calm at the approach, incident, and consequence stages. Additionally, significantly higher ratings of calm were elicited by treatment and recurrence scripts relative to the diagnosis script at the incident and consequences stages.

With the exception of ratings of calm, the consequence stage elicited significantly greater ratings for all psychological responses to imagery for the diagnosis script than the treatment and recurrence scripts.

The diagnosis script elicited significantly greater anxiety, fear, shock, and PDI

than the treatment and recurrence scripts at the incident and consequence stages. Similarly, the diagnosis script elicited greater VAS ratings than the treatment and recurrence scripts at the consequence stage for frustration, tension, and helplessness.

For the ratings of tension and anxiety, the diagnosis script elicited significantly greater levels than the recurrence script at the approach stage. Whilst this was result was replicated at the scene stage for tension ratings, the recurrence script elicited significantly greater anxiety at this stage than the diagnosis script.

The diagnosis script elicited significantly greater levels of: tension at the approach and incident stages than the treatment script, and for PDI at the approach stage and helplessness at the incident stage than the recurrence script. Finally, fear ratings were significantly greater at the scene stage of the treatment script than the diagnosis script.

Consideration was then given to across stage differences in psychological responses to imagery for each script. As previously demonstrated in the first analysis there were no significant across stages differences for the neutral script for any of the VAS items. Similarly, with the exception of anxiety and fear ratings, no across stage differences in psychological responses were observed for the treatment script. For fear of recurrence, only shock and frustration responses were not significantly different across stages. Significant post hocs results are demonstrated in Table 10

Table 10

Post hoc analysis results for across stage changes for each script for the high and low resilience groups including fear of recurrence script (n=17).

VAS Item	Script	df	*F*	*p*	Fisher's LSD	Differences
Anxiety						
	Diagnosis	2, 74	10.7	<.0001	9.7	1<2; 1,2<3,4
	Treatment	2, 74	5.0	<.005	9.6	1,2<3; 3>4
	Recurrence	2, 74	6.3	<.001	13.8	1,2<3; 1<4
Fear						
	Diagnosis	2, 74	8.4	<.0001	11.7	1,2<3,4
	Treatment	2, 74	2.8	<.05	11.9	3>1,2,4
	Recurrence	2, 74	7.2	<.0004	13.8	1,2<3,4
Frustrated						
	Diagnosis	2, 74	7.6	<.0003	13.5	1<3,4; 2<4
Shocked						
	Diagnosis	2, 74	9.9	<.0001	17.0	1,2<3,4
Tension						
	Diagnosis	2, 74	3.2	<.04	13.9	1<3,4; 2<3
	Recurrence	2, 74	8.0	<.0002	14.8	1<3,4; 2<3
Calm						
	Diagnosis	2, 74	8.4	<.0001	12.8	1>2,3,4; 2>3
	Recurrence	2, 74	3.0	<.05	15.0	1>3
Helpless						
	Diagnosis	2, 74	10.1	<.0001	12.3	1,2<3,4
	Recurrence	2, 74	3.0	<.04	16.7	1<3
PDI						
	Diagnosis	2, 74	12.1	<.0001	12.6	1,2<3,4
	Recurrence	2, 74	5.5	<.003	11.5	1<3,4; 2<3

The incident and consequence stages of the diagnosis script elicited significantly greater ratings of fear, anxiety, shock, PDI, and helplessness, than the scene and approach stages. Interestingly the same result was found solely for the ratings of fear in response to the fear of recurrence script. Fear ratings in response to the treatment script, however, were significantly higher in the incident stage than all other stages.

At both the incident and consequence stages, relative to the scene stage, the diagnosis script elicited significantly greater frustration and tension, whilst tension and PDI were found significantly greater in response to the fear of recurrence script. Similarly, compared to the approach stage, the incident stage of the diagnosis and fear of recurrence scripts produced significantly greater tension and the fear of recurrence script elicited significantly greater PDI. Moreover, at the incident stage, significantly greater frustration was prompted by the diagnosis script relative to the approach stage, and significantly greater helplessness was elicited by the fear of recurrence script compared to the scene stage.

For the ratings of anxiety, the approach stage of the diagnosis script elicited significantly greater anxiety than the scene stage. For the treatment and fear of recurrence scripts, anxiety was significantly greater in the incident stage than the scene and approach stages and for the approach and incident stages relative to the scene stage. Similarly, significantly greater anxiety was elicited at the incident stage than the consequence stage of the treatment script and at the consequence stage relative to the scene stage of the fear of recurrence script.

When calm ratings were considered, results demonstrated significantly greater ratings at the scene stage than all subsequent stages of the diagnosis script and at the approach relative to the incident stage of the diagnosis script. The results also supported the validity of the significantly greater calm ratings at scene stage relative to the incident stage of the fear of recurrence script, again providing evidence that the fear of recurrence imagery was able to impact partners' psychological responses accordingly.

Discussion

The present study aimed to examine the influence of partners' level of resilience on their peri-traumatic psychophysiological and subjective psychological responses to illness related events associated with their significant other's life threatening illness.

Interestingly, results of the present study demonstrated that partner peri-traumatic psychophysiological and psychological responses to diagnosis, treatment, and fear of recurrence experiences could not be differentiated based on their level of resilience. These results refute the hypothesis that those lower in resilience, due to greater vulnerability to psychopathology, would exhibit greater psychophysiological arousal.

Against expectations, no significant differences were found in cardiovascular recovery between high and low resilient partners. Both groups remained relatively distressed following the incident (i.e. receipt of diagnosis) stage of the illness-related imagery scripts. These findings contradict those reported by Tugade and Frederickson (2004) who found significantly faster cardiovascular recovery in high compared to low resilient individuals.

A key aspect of resilience is the successful recovery from adversity which is typically found in the return to homeostasis following a disrupting event (Waugh, Frederickson, & Taylor, 2008). The results of the present study indicate that resilient partners may experience physiological distress and negative emotions in response to illness related stressors from their loved one's life threatening illness. These findings accord with Tugade and Frederickson's (2004) contention that normal levels of adverse physiological and emotional responses to stressful circumstances may be

experienced by resilient individuals. However, in order that individuals exhibit resilience, a prompt return to homeostasis or recovery from these normal stress responses would be warranted (Waugh et al., 2008). This latter aspect was not been demonstrated in our findings. Hence there exists a need for further investigations of cardiovascular recovery incorporating more rigorous methodologies with this population.

It is possible that the differential methodologies between the present and the abovementioned previous study were contributing factors to the incongruent findings. The present study adopted a personalised imagery based approach to examine psychophysiological responses compared to Tugade and Frederickson's (2004) use of a laboratory induced stressor. Moreover, the measurement of responses in the present study was based on partners' responses to an events imagery script based on a chronological account of that event over four stages (setting the scene, approach, incident, consequences). Tugade and Frederickson (2004) recorded participants' responses prior and during the stressors as well as recording the amount of time taken for individuals' cardiovascular activity to return to homeostasis. Given the relatively brief time taken to administer the script stages in the current study it is possible that this was not sufficient to capture partners' cardiovascular recovery. Future research design may benefit from the addition of a recovery stage post script completion which may help to elucidate partner recovery processes based on their level of resilience.

Similar to results obtained in the current study, Tucker and colleagues (2007) reported heightened physiological reactivity in seemingly resilient individuals. Specifically, their study of the physiological reactions and psychiatric symptoms in Oklahoma bombing survivors and local age-matched controls approximately 7 years

following this terrorist attack found greater physiological reactivity to trauma reminders of the bombing in survivors relative to the community comparison group, despite the apparent emotional health and 'resilience' of these survivors. Moreover, the greater physiological reactivity in survivors was consistent with findings in chronic PTSD populations (e.g., Pitman, Orr, Forgue, de Jong, & Claiborn, 1987; Orr et al., 1998). Tucker et al. (2007) postulated two possible explanations for their findings: that the independence between bombing survivors biological sensitivity and emotional symptoms is characteristic of either healing or resilience, and that "the residue of trauma exposure may persist less in the narrative ratings of emotional effects than in the physiologic differences that may be independent of the pathophysiology of PTSD" (Tucker et al., 2007, p.234). Thus it may be that partners in the current study exemplify this same resilience profile, and retain a biological sensitivity towards these trauma related cues.

Another consideration is that the literature has demonstrated positive associations between increased cardiovascular reactivity to both emotional distress (See Bradley & Lang, 2007 for a review) and to observing the pain of close others (e.g., Singer et al., 2004). Studies have shown that an individual's empathic reactions to another's pain are increased by their relationship satisfaction and regard for the other person's wellbeing (e.g., Singer et al., 2004). Hence Monin and colleagues (2010) argued that the nature and closeness of one's relationship with another is likely to influence their physiological and psychological reactions to the other person's suffering. These authors examined the degree to which the nature of the relationship impacted upon an individuals' cardiovascular response to another's suffering using spousal caregivers' of older adults with osteoarthritis. Spouses' physiological (blood pressure and heart rate) responses were measured with regards

to witnessing their partner suffering relative to witnessing a stranger suffering from an identical physical pain-eliciting task. Additionally, spousal caregivers' subjective psychological and physiological responses were measured in relation to their two verbal accounts about the care recipient: a mundane interaction (e.g. during a meal) and an episode where they felt their partner was suffering physically, psychologically and spiritually/existentially. Results demonstrated spousal caregivers' heighted cardiovascular reactivity when observing their partner compared to a stranger suffering physically and when discussing the suffering of their loved one relative to talking about a mundane interaction with their partner. These findings imply that spousal caregivers' wellbeing can be adversely impacted by observing or talking about the suffering of their significant other (Monin et al., 2010). It is arguable that the personalised illness-related imagery scripts administered to partners in the present study would have undoubtedly involved observations of their significant others' emotional and physical suffering. Consequently, this may have contributed not only to the relatively high heart rates reported by partners but also to the lack of differentiation between high and low resilient partners' responses. However, replication of these results is warranted with a larger sample and potential inclusion of an imagery script pertaining to the suffering of a 'stranger' (i.e. control) may help to elucidate whether partner caregivers exposure to suffering increases their risk of adverse physical and psychological responses.

Nonetheless, the results of this study serve as a timely reminder that the presence of resilience does not imply the absence of distress. Indeed, the present study has provided empirical support for the contention that an individual can be both distressed and resilient simultaneously (e.g., Zautra, Hall, & Murray, 2008).

This is in line with the models of responses to trauma that specify an individual's transient 'dip' or decline in functioning at the peri-trauma stage (e.g., Layne et al., 2007) regardless of the trajectory of response to the traumatic event (e.g., resilience, recovery, delayed distress, chronic distress). However, the present study is the first to provide objective empirical support for these models using a population of partners of individuals with a life threatening illness. Additionally, this study provides an empirical basis suggesting individuals indirectly impacted by a potentially traumatic event (namely a life threatening illness) demonstrate similar peri-traumatic responses to those directly impacted. This parallel is important for two key reasons. Firstly, it suggests that existing models of adjustment to a life-threatening illness may be equally amenable to the partner experience of this potential trauma. As such, it also reinforces the importance of providing targeted intervention to this population to assist them in developing more adaptive outcomes both during, and as a consequence of, their experience.

Theoretical implications

The discord in the literature regarding how to best conceptualise resilience is well recognised. Consequently there remains debate as to whether resilience is best described as a trait, process, or outcome (Luthar, Cicchetti, & Becker, 2000). Based on the findings of this study it could be argued that should resilience refer to a trait, it may serve to protect or prepare the individual for the experience of distress or adverse psychological symptoms at the peri-traumatic stage or at least be reflected in an observed significant differentiation between high and low resilience groups' peri-trauma responses. More specifically, it is arguable that those partners *without* such trait resilience could potentially demonstrate greater psychophysiological responses upon and immediately following exposure to a potentially traumatic event, akin to

the reactions associated with the development of PTSD. The findings from the present study suggest, however, that as a trait, resilience does not appear to better prepare partners for diagnosis, treatment, or fear of recurrence for a significant other's life threatening illness. The findings from this study also suggest that if resilience is best defined as an outcome, it does not appear to have influence on partners' peri-traumatic responses to their loved one's diagnoses of, fear of recurrence, and treatment for a life threatening illness. It may be that the influence of resilience on partners functioning and responses may appear later on in the post-trauma stages of the illness trajectory. Hence, there is a further need to examine partners' post-traumatic responses to the experience of their loved ones life threatening illness to examine the influence of resilience on post-trauma factors.

When cardiovascular recovery and level of resilience are considered, the results of the present study imply that if partners with high resilience were expected to demonstrate a faster return to baseline heart rate following a stressor this does not appear to occur in the immediate aftermath of a significant other's diagnosis, treatment and the experience of fear of recurrence. How long this process takes, however, has yet to be determined. Hence, this affords an additional reason to examine partners' post-trauma responses to identify any changes in partners' functioning and the presence of adaptive or pathological outcomes to identify if it does in fact occur. Future research incorporating longitudinal analyses of partners' response trajectories to the stressful experience of a significant other's chronic illness would better elucidate the mechanisms by which resilience are physiologically demonstrated.

Previous studies have reported discrepancies between psychophysiological and self-reported psychological responses to script driven imagery (Pitman et al., 2001).

More specifically, these studies have reported relative equilibrium in subjective psychological (e.g., VAS) responses between participant groups, such as PTSD and non-PTSD groups, despite significant differences in psychophysiological measurements for those directly (e.g., Orr et al., 1998) and indirectly (Carson et al., 2000) exposed to traumatic events. The present study reports similar findings of no differentiation between low and high resilience partners' subjective psychological responses to illness-related imagery. However, in contrast to previous studies findings, no differentiation was found between the experimental groups. Hence, it could be argued that the concurrence between both psychological and psychophysiological peri-traumatic responses for partners may indicate similar awareness of subjective emotional and physiological experiences of distress/stress to illness-related events throughout the illness trajectory.

Methodological considerations

It is possible that the heterogeneity of the sample may have suppressed group differences and consequently contributed to the lack of differentiation found between both high and low resilience groups peri-traumatic responses. Specifically, the length of time post-diagnosis for partners ranged from two months to twenty six years. Additionally, some partners loved ones were still receiving active treatment during the testing period, whilst other partners were in the post treatment phase of the illness trajectory. Hence, there are differential stressors faced within these phases which may have impacted upon partners' level of functioning and stress accordingly which may have masked the results of the study accordingly. Unfortunately due to the difficulties in recruiting partners to participate in the present study, the inclusion criteria included partners whose loved ones were still receiving active treatment. Future research with larger populations may provide the opportunity to create

homogenous sub-groups which could be examined and compared for any similarities and differences accordingly.

Factors that may impact psychophysiological measurements

There is some contention in the literature that both depression (Bylsma, Morris, & Rottenberg, 2008) and psychotropic medications (Orr et al., 1993) can effectively "blunt" ones emotional and physiological responses to stressors. However, information pertaining to partners' clinical symptoms or use of psychotropic medications was not obtained in the present study. Given the clinically significant results scores found on all domains of the SCL90-R for low resilience partners reported in a recent study (Nutting & Norris, submitted), there is potential for these partners to be diagnosed with depression or other clinically significant symptoms or diagnoses (e.g., anxiety) and/or to be taking prescribed psychotropic medications Hence, it is possible that both subjective and physiological responses of partners impacted by such factors may have served to mask their results accordingly and skewed the overall results. However, there is also evidence to suggest that when participants using psychotropic medications were excluded the overall physiological results remained unchanged (e.g., Orr et al., 1998; Pitman et al., 1987).

Whilst the experimental paradigm used in the present study has been well established, it is possible that partners were visualising back to events of the past, and potentially viewing their experience based on where they were presently with regards to adjustment. This may help to explain the study's non-significant findings.

Previous studies have criticized the common method of recruiting partners to the research study via direct contact with patients (e.g., Cochrane & Lewis, 2005). This

leads to the patient's capacity to decline their partners' participation in the study without the partner's knowledge. Subsequently, this omits any opportunity for the partner to participate and engage in research and to have their responses and experiences be considered.

Despite the extensive recruitment methods undertaken within the present study, a relatively small number of partners volunteered to participate in the present study. However, the stressors inherent in partners' caregiving role may have been a deterrent for many partners. For example, it is possible many partners may have been limited by time constraints and the responsibilities of their caring role to attend the two empirical sessions required in the present study's methodology. Moreover, there exists the possibility that those who volunteered for the study may represent a biased sample. More specifically, those less distressed overall may have been more amenable to participation in the present study whilst those partners impacted by more severe psychological sequalae elected not to participate. These considerations have also been raised by other studies measuring both physiological and psychological responses to traumatic events (Tucker et al., 2007).

Conclusions

The current study constituted an exploratory examination of partner peri-trauma functioning using objective measurement indices. Results indicated that despite being categorised as either high or low in resilience based on responses to the Resilience Scale (Wagnild & Young, 1993), their psychophysiological and psychological responding during personalised imagery of their illness-related experiences were undifferentiated.

Whilst this study has merit in providing objective empirical support for theoretical models positing peri-traumatic disruptions to functioning using partners peri-traumatic responses to illness related events, more rigorous research and replication of results are warranted with larger populations before generating beyond this sample.

Irrespective of the identified limitations within the current study, the results suggest that the experience of illness related events - namely diagnosis, treatment, and fear of recurrence - is distressing for partners irrespective of their level of resilience. Whilst this may be considered an obvious finding, to date there has been no objective measurement employed to determine such a result. To the authors' knowledge, this novel exploratory study is the first to provide an objective empirical basis on examining partners' peri-traumatic psychophysiological and psychological responses and consider the influence that their level of resilience has in this regard. Thus, the present study represents an important starting point regarding psychophysiological examination and objective measurement of resilience, as well as emphasising the importance of examining partner responses to a loved one's life threatening illness.

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CHAPTER 4

Partners responses to their loved one's life threatening illness: An investigation of resilience on coping, social support, and psychological outcomes

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Abstract

Due to the research focus to date on the challenges and negative outcomes to adversity in partners of people with a life threatening illness, little is known about their post trauma outcomes with respect to the influence of resilience and adaptive responses to their experiences. The present study aimed to examine the influence of partners' level of resilience on their post trauma responses (e.g., coping strategies used, satisfaction with social support) and psychological outcomes (e.g. psychological and post trauma stress symptoms). Thirty-eight partners were classified as high (n= 22) or low (n=16) in resilience based on participants' responses to the Resilience Scale (Wagnild & Young, 1993). Data from both subjective self-report measures (IES-R; BriefCope; SSQ-6; SCL-90R) and clinical interview (CAPS; Blake et al., 1995) were subjected to t-tests and chi-squared analyses respectively. Unexpectedly, results demonstrated no significant differences between low and high resilient partners in coping styles used or satisfaction with social support from their partner. A strong trend towards significance was found for high resilient partners to report greater satisfaction with support from family and friends. Predictions regarding low resilient partners reporting significantly greater post traumatic stress symptomatology were not supported. However, support was provided for the prediction of a significantly greater number of psychological symptoms in low resilient partners compared to high resilient partners. To our knowledge, this study is the first to provide empirical support for the greater vulnerability to psychopathological outcomes in partners low in resilience and points to the need to develop interventions to assist these partners and for further research resilience in partners of individuals with a life threatening illness.

Introduction

There exists a vast body of literature that attests to the challenges and adverse outcomes associated with providing care to a loved one diagnosed with a life threatening illness (see Nijboer et al., 1998; Sorensen, Pinquart, & Duberstein, 2002). These negative impacts to caregiving partners have spanned both physical and mental health domains with evidence that a proportion of partners will develop post traumatic symptomatology resulting from their experience (Carak, Norman, & Barton, 2010). These adverse outcomes have dominated the research landscape on partners to date, with little consideration of the potential for adaptive responses. Whilst there is increasing recognition of successful adaptation to adversity in various populations including cancer patients (e.g., Deshields, Tibbs, Fan, & Taylor, 2006), this focus remains largely neglected when partners of individuals with a life threatening illness are considered. This is surprising given the important role partners play in influencing patient recovery (Hodges, Humphris, & Macfarlane, 2005). Hence, it could be argued that maintaining partners normal functioning and adaptive responses in the face of adversity from the illness experience would be beneficial to both patient and partner alike.

Resilience is common

There is much contention in the literature with regards to how resilience is best conceptualised, with researchers variously defining this concept as a trait, process, or an outcome (e.g., Luthar, Cicchetti, & Becker, 2000).

Our previous study of the influence of resilience on partners' peri-traumatic response (Nutting & Norris, submitted) found no significant differentiation between psychological and physiological distress in the same sample of partners. A tentative

conclusion arising from these results was that should resilience reflect a process or an outcome, it did not transpire at the peri-traumatic stage and subsequent examination of partners' post-traumatic responses was therefore warranted.

As testified in the resilience literature, not all those who experience adversity respond negatively or develop pathological outcomes (Bonanno, 2004). Recent examinations of trajectories of response in individuals exposed to various potentially traumatic experiences (e.g. bereavement, cancer survivors) have demonstrated resilience to be the most common trajectory of response relative to short term distress and longer term psychopathological outcomes (Bonanno, Moskowitz, Pap, & Folkman, 2005; Helgeson, Snyder, & Seltman, 2004).

These models propose that the resilience trajectory is defined by a transient disruption to function during and immediately following exposure to the stressor and a relatively prompt return to normal functioning (Bonanno, 2004). Other response trajectories are characterised by distress and gradual recovery in functioning, delayed distress, and chronic distress (e.g., Bonanno, 2004; Layne, Warren, Watson, & Shalev, 2007). As such, it could be expected that partners low and high in resilience could be differentiated by their post-traumatic response trajectory. Indeed, better psychological functioning and adaptation following exposure to a stressful event have been reported by individuals higher in resilience (e.g. Campbell-Sills, Cohan, & Stein, 2006; Mancini & Bonanno, 2006). Moreover, PTSD symptomatology has been found to be negatively associated with resilience scores (Pietrzak, Johnson, Goldstein, Malley, & Southwick, 2009).

The broader literature on resilience and adaptation to trauma infers that social support and coping strategies are key contributors to an individual's post-trauma

responses and outcomes. More specifically, studies have shown that individuals higher in resilience tend to employ greater use of adaptive coping strategies (problem-solving, approach coping) and report greater satisfaction with social support relative to those lower in resilience (e.g., King, King, Fairbank, Keane, & Adams; Riolli, Savicki, & Cepani, 2002). Analogous findings have been reported in the few available studies on informal family or partner caregivers (e.g., Marnocha & Marnocha, 2013; Wilks & Croom, 2008).

Coping

Coping refers to the cognitions and behaviours employed by the individual to manage or reduce the demands of stressful circumstances (Folkman & Lazarus, 1988). Coping types have traditionally been defined as problem focused by which the individual concentrates their efforts on managing the problem creating the distress, and emotion focused which focus on regulating the emotion stemming from the problem (Lazarus & Folkman, 1984). A further delineation is avoidant coping in which individuals actively avoid dealing with a stressor (Roth & Cohen, 1986). There is a general consensus in the literature that active problem-focused coping approaches are associated with more adaptive responses compared to emotional focused styles (Aldwin, 1994). Analogous findings have been reported in studies in caregiving populations, whereby resilience has been positive related with problem focused coping style and negatively associated with avoidance coping styles (e.g., Marnocha & Marnocha, 2013).

Marnocha and Marnocha (2013) examined patterns of coping among 96 older female spouses contending with their partner's coronary artery bypass graft surgery (CABG). The study's results supported the authors' expectation that resilient spouses

would report greater use of adaptive problem-focused copies strategies. In contrast, emotion focused coping strategies demonstrated no significant association with resilience. In a similar vein, Fitzell and Pakenham's (2010) examined predictors of coping and social support in 622 colorectal cancer caregivers. Results substantiated their hypothesis that better caregiver adjustment would be associated with less reliance on avoidance coping strategies although problem solving coping strategies were only weakly related to caregivers' adjustment. It should be noted, however, that despite the majority of the caregiver sample comprised partner caregivers (84%), the inclusion of other informal caregivers such as other family members and friends detracted away from the unique adjustment factors of partners and thus reflects the needs for research to be solely conducted on partner caregivers accordingly.

A review of the impact of cancer on partners coping and adjustment across the illness trajectory (Carlson, Butz, Speca, & Pierre, 2000) concluded that partners experience marked distress at different stages of the illness trajectory, which may reflect difficulties with coping and adaptation to the illness experience. The authors' synthesis of studies in this population asserted that, overall, less distress and better outcomes in partners of cancer patients was associated with seeking social support and not utilising escape or avoidant coping strategies. Ptacek, Ptacek, and Dodge (1994), demonstrated that whilst husbands of breast cancer patients most commonly employed problem solving coping approaches, psychological adjustment was more strongly associated with support-seeking. Indeed, research focused on coping and adjustment in cancer patients and partners has shown that social support has been cited by both members of the couple as the key facilitator in coping with the illness experience (Keitel, Zevon, Rounds, Petrelli, & Karakousis, 1990).

Social support

It is well recognised that partners' caregiving responsibilities may reduce opportunities for social engagement, activities, and access to sources of social support outside their ill loved one (Stenberg, Ruland, & Miakowski, 2010). This is potentially problematic given that caregivers reporting lower levels of social support are at greater risk of developing depression or anxiety (e.g., Onsworth, Henderson, & Chambers, 2010; Price et al., 2010). Having said this, qualitative social support has been found to better predict caregiver adjustment relative to quantitative social support (Fitzell & Pakenham, 2010; Sander, High, Hannay, & Sherer, 1997; Thoits, 1995).

Whilst it has been recognised that partners and patients should be deemed as both providers and recipients of support (e.g., Badr, Carmack, Kashy, Cristofanilli, & Revenson, 2010), most studies in illness populations have focused on patients' satisfaction with support from their partner and have seldom considered the partner experience (e.g. Berg & Upchurch, 2007; Manne, Taylor, Dougherty, & Kermeny, 1997), or collected data exclusively on partners' satisfaction without a dyadic approach (Dagan et al., 2011). Given the recognition of obstacles to social support commonly faced by caregiving partners, the importance of social support on adaptation, and the integral role played by partners in patients' recovery, surprisingly little research has examined partners' satisfaction with social support, particularly regarding perceived support from the patient. Hence, little is known about the impact that partners satisfaction with patients support has upon their adaptation and functioning.

Available research examining perceptions of supportive and unsupportive behaviours from both patients and partners reported that partners' perceived support from patients influenced their level of distress, although personal control was found to be a moderator for these findings. Specifically, whilst partners high in personal control reported low levels of distress regardless of patients' support behaviours, partners low in personal control reported higher distress for patients' unsupportive behaviours and lower distress for patients' supportive behaviours (Dagan et al., 2011), suggesting that those lower in control may rely on supportive others to better cope with adverse events.

Many studies regarding the impact of social support on adaptation and resilience have been correlational in design and emphasized its role as a predictor, mediator, or moderator to resilience or psychological well-being as opposed to comparing satisfaction with social support from close others between individuals low and high in resilience (e.g., Nijboer, Tempelarr, Triemstra, van den Bos, & Sanderman, 2001). For example, Wilks and Croom (2008) reported a moderately high level of resilience for Alzheimer's family caregivers despite an intermediate degree of perceived stress. The authors asserted that this result was likely to be contributed to by the moderating role of social support by family and friends on the negative effect of perceived stress and this having a positive influence in caregivers' resilience (Wilks & Croom, 2008). Additionally, Nijboer and colleagues (2001) study of cancer caregivers reported that the association between caregivers experiences and depression was moderated by their daily perceived emotional support. Hence, over time, those caregivers who reported greater disruptions to their daily schedule and lower levels of emotional support had higher vulnerability for increased levels of depression. These studies

point to the need to consider the role of social support in both adaptation and interventions regarding partners caring for the ill loved ones.

Aims & Hypotheses:

This study aimed to examine whether resilience influences the development of psychopathology in populations providing care for a seriously ill loved-one. It is hoped that establishing an empirical basis regarding the influence of resilience on partners post-trauma functioning may assist in identifying partners vulnerable to adverse psychological outcomes and inform the development on interventions to enhance adaptive responses in these partners that deviate from the current interventions offered to caregiving partners that assume homogeneity of responses in this population to their loved ones illness.

It was expected that participants high in resilience would utilise significantly more adaptive, action-oriented coping strategies and demonstrate significantly greater satisfaction with perceived social support than participants low in resilience. It is also anticipated that participants low in resilience would demonstrate significantly higher levels of psychological symptomatology and more PTSD symptoms than those participants high in resilience.

Method

Participants

The eligibility criteria for inclusion in the current study specified that participants were partners of individuals who had been diagnosed with, and treated for, a life threatening illness and able to adequately recall events (e.g., diagnosis, treatment, and fear of recurrence) along the illness trajectory. Initially, 43 partners

were recruited to the current study from local community and support services, public and private hospitals, medical private practices, media coverage and advertising. Five volunteers were excluded from the final sample due to not fulfilling study requirements. The final sample comprised 38 participants who were allocated to high and low resilience groups on the basis of their scores on the Resilience Scale (Wagnild & Young, 1993).

Participants ages ranged from 33 to 82 with a mean age of 60.7 (*SD* = 11.7). Characteristics of participants as specified by group are presented in Table 1. As demonstrated in Table 1, there were no significant differences between the groups with respect to age. Similarly, there were no significant differences in the proportion of men and women in each group, as shown in Table 1.

Table 1

Participant characteristics per low and high resilience groups (N = 38)

Variable	Level		Group		Analysis
			Low	High	
			% (n)	% (n)	
Sex	Female		75 (12)	54.5 (12)	χ^2 (1, N=38) = 1.7, *p*=.197
	Male		25 (4)	45.5 (10)	
Age		M	58.6	62.3	*t*(36) = -.97, *p*=.340.
		SD	13.0	10.6	

Apparatus and Materials

A brief questionnaire devised by the author was used to obtain demographic and illness-related data from the participants.

*The Resilience Scale (*RS; Wagnild & Young, 1993) was used to assess participant resilience. The RS is a 25 item scale that comprises two factors which measure the construct of resilience: personal competence and acceptance of self and life. Each item is rated on a 7-point Likert scale, and a single score is provided by summing all responses, with higher scores indicating higher levels of resilience. Excellent reliability of the RS has been demonstrated (α = 0.76 to 0.91, Wagnild & Young, 1993; and α = 0.95, Lee, Brown, Mitchell, & Schiraldi, 2008). The present study additionally reported excellent reliability (α = 0.91). A recent review of resilience scales (Ahern, Kiehl, Sole, & Byers, 2006) deemed the psychometric properties of the RS to be superior in comparison to other resilience scales.

Symptom Checklist 90-Revised (SCL-90R). The SCL-90-R (Derogatis, 1994) was used to assess psychological symptoms experienced during the preceding 7 days and their intensity. This 90 item self-report measure assesses the severity of the individual's distress associated with experiencing each of the 90 symptom items is rated on a 5-point Likert scale ranging from 0 (Not at all) to 4 (Extremely). This measure enables symptoms indicating clinical significance to be identified. The standard scores for the current study's sample were derived from standard non-patient norms outlined in the SCL-90R administration manual (Derogatis, 1994). Psychometric properties for the SCL-90R have been reported to reflect adequate convergent and construct validity, hence indicating it to be a good measure of current psychopathology (Derogatis, 1994). Additionally, good internal consistency has been demonstrated for the subscales (α ranging from 0.77 to 0.90) (Derogatis, 1994). Excellent reliability was reported in the present study (α = 0.98).

Impact of Event Scale-Revised (IES-R). The Impact of Event Scale-Revised (IES-R) (Weiss & Marmar, 1997) was administered to determine current subjective

distress in relation to participants' experience of their loved one's life threatening illness. The IES-R comprises three sub-scales that are congruent to the three posttraumatic stress disorder symptom clusters outlined in the DSM-IV: intrusive, avoidance, and hyperarousal symptoms. Respondents rate their level of distress regarding specific posttraumatic symptoms from 0 (not at all) to 4 (extremely). Internal consistency has been reported as high for each of the subscales: intrusion (α ranging from 0.87 to 0.92), avoidance (α ranging from 0.84 to 0.86) and hyperarousal (α ranging from 0.79 to 0.90) (Briere, 1997). Excellent reliability of the overall scale is reported by the present study (α = 0.95), as well as high internal consistency reported for each of the subscales: intrusion (α = 0.86), avoidance (α = 0.87), and hyperarousal (α = 0.89).

BriefCOPE. The BriefCOPE (Carver, 1997) is a 28 item abbreviated version of the COPE scale employed to determine coping strategies most commonly utilised by the participant. It comprises 14 conceptually different subscales (self-distraction, active coping, denial, substance use, use of emotional support, use of instrumental support, behavioural disengagement, venting, positive reframing, planning, humour, acceptance, religion, and self-blame). Responses are based on a 4 point Likert scale ranging from "I haven't been doing this at all (1)" to "I've been doing this a lot (4)". Adequate internal reliability of the a priori scales of the BriefCOPE has been demonstrated in a study of Hurricane Andrew survivors (David et al., 1996) and excellent reliability reported in the present study (α = 0.88).

6-item Social Support Questionnaire (SSQ6). The abbreviated 6-item Social support questionnaire (SSQ6; Sarason, Sarason, Shearin & Pierce, 1987) was used to assess partners' satisfaction with social support received from the patient and close

others (e.g., family and friends), using a 6-point Likert scale from 1(very dissatisfied) to 6 (very satisfied). Scale reliabilities range from α = .90 to .93 (Sarason et al, 1987) with high reliability also reported in the present study (α = 0.89).

Clinician Administered PTSD Scale (CAPS). The Clinician Administered PTSD Scale (CAPS; Blake et al., 1995) is a semi structured interview conducted to determine the presence of PTSD symptoms and is widely regarded as the 'gold standard' in PTSD assessment. The CAPS comprises 34 questions which measure symptom frequency and intensity. Additionally, the CAPS assess guilt, depression, and functional impairment in social and occupational performance. It consists of three subscales which correspond with the DSM-IV symptom clusters: re-experiencing, avoidance and numbing, and hyperarousal. High internal consistency has been demonstrated by the CAPS for the three symptoms clusters (α ranging from .85 to .87) and the overall score (α = 0.94) (Blake et al, 1995). The internal consistency for the present study was considerably lower for the three symptom clusters: avoidance (α = 0.70), re-experiencing (α = 0.60), and hyperarousal (α = 0.54).

Procedure

Prior to commencing recruitment ethical approval was gained from both the Social Science and Health and Medical Research Ethics Committees from the University of Tasmania. An information sheet was provided to the participant and informed consent obtained before their participation in the study.

A structured clinical interview (CAPS; Blake et al., 1995) was conducted by the investigator. Participants were provided with a questionnaire package which included: the SCL-90R, the Impact of Event Scale-Revised (IES-R), the Brief COPE, and the SSQ-6. During the session the investigator reviewed the completed

questionnaires with the participant to ensure all items were answered and to clarify any queries.

Results

Overview of results

Responses to the IES-R, BriefCope, and SSQ6 were compared between groups. Responses to the SCL90-R were then compared between groups to provide a clinical picture of symptoms of psychopathology for each group. Data elicited by the structured clinical interview (CAPS) was then used to determine the proportion of PTSD or sub-threshold PTSD symptoms present and absent within each group.

Description of the Sample

Comparisons between groups with regards to patients' illness related data are presented in Table 2.

Table 2

Descriptive factors associated with patients' illness for Low Resilience and High Resilience groups.

Variable	Level	Group		Analysis
		Low % (n)	High % (n)	
Prior Symptoms	Nil	31.3 (5)	9.1 (2)	χ^2 (5, N = 38)=4.4, *p*=.493
	<1mth	12.5 (2)	22.7 (5)	
	1-5mths	31.3 (5)	45.5 (10)	
	6-11mths	18.8 (3)	13.6 (3)	
	1yr	0 (0)	4.5 (1)	
	>1yr	6.3 (1)	4.5 (1)	
Time since diagnosis	1-5mths	6.3 (1)	22.7 (5)	χ^2 (3, N = 38)=2.5, *p*=.480
	6-11mths	12.5 (2)	9.1 (2)	
	1yr	12.5 (2)	4.5 (1)	
	>1yr	68.8 (11)	63.6 (14)	
Time between diagnosis & treatment	Nil	12.5 (2)	13.6 (3)	χ^2 (3, N = 38)=1.7, *p*=.640
	<1mth	43.8 (7)	54.5 (12)	
	1-5mths	43.8 (7)	27.3 (6)	
	6-11mths	0 (0)	4.5 (1)	
Illness Type	Cardiovascular	12.5 (2)	0 (0)	χ^2(13, N = 38)=17.6, *p*=.287
	Prostate cancer	18.8 (3)	9.1 (2)	
	Lymphoma	18.8 (3)	9.1 (2)	

	Skin Cancer	0 (0)	4.5 (1)	
	Bone Cancer	0 (0)	4.5 (1)	
	Breast Cancer	6.3 (1)	9.1 (2)	
	Carcinoma	6.3 (1)	4.5 (1)	
	Testicular Cancer	12.5 (2)	0 (0)	
	Oesophageal Cancer	18.8 (3)	4.5 (1)	
	Gynaecological cancers	0 (0)	9.1(1)	
	Pancreatic cancer	0 (0)	4.5 (1)	
	Bowel Cancer	6.3 (1)	9.1 (2)	
	Leukaemia	0 (0)	27.3 (6)	
	Mesothelioma	0 (0)	9.1 (2)	
Treatment type	Surgery	37.5 (6)	4.5 (1)	χ^2 (7, N = 38)=10.6, *p*=.157
	Chemotherapy	18.8 (3)	18.2 (4)	
	Hormone Therapy	0 (0)	4.5 (1)	
	Pharmacotherapy	0 (0)	4.5 (1)	
	Induced Coma	6.3 (1)	0 (0)	
	Infusion	0 (0)	4.5 (1)	
	Transplant	0 (0)	4.5 (1)	
	Combination of therapies	37.5 (6)	59.1 (13)	
Treatment successful?	Yes	62.5 (10)	40.9 (9)	χ^2 (3, N = 38)=5.9, *p*=.116
	No	18.8 (3)	4.5 (1)	

	Ongoing	12.5 (2)	45.5 (10)	
	Unsure	6.3 (1)	9.1 (2)	
Recurrence	Yes	6.3 (1)	31.8 (7)	χ^2 (2, N = 38)=8.8, p=.012*
	No	75.0 (12)	27.3 (6)	
	N/A	18.8 (3)	40.9 (9)	

* = p <.05

As demonstrated in Table 2 there were no significant differences in the proportion between groups of reported patient illness factors such as prior symptoms, time since diagnosis, time between diagnosis and treatment, illness type, treatment type, and treatment success. However, a significantly higher proportion of high resilience partners reported recurrence of the patients' illness. Analogously, a higher proportion of partners from the high resilience group reported that recurrence was not a factor due to the patient still receiving treatment.

Impact of Events

Table 3 displays means and standard deviations for each group on the IES-R scales.

Table 3

Group means, standard deviations, independent t-test results, and effect sizes for each subscale and total score on the IES-R (N=38).

Subscale	Group				Independent T-Test		
	Low		High				
	M	*(SD)*	*M*	*(SD)*	*t(36)*	*p*	Hedges *g*
Intrusive	1.3	1.0	1.2	0.7	0.6	.584	0.18
Avoidance	1.1	1.0	0.7	0.6	1.6	.139	0.54
Hyperarousal	1.1	1.0	0.6	0.7	1.6	.113	0.53
Total IES-R	3.5	2.9	2.5	1.7	1.3	.218	0.45

As presented in Table 3 the low resilience group reported higher mean scores than the high resilience group on all IES-R scales. However, there were no significant group differences on the Intrusive, Avoidance, Hyperarousal, and Total mean scores on the IES-R. The high standard deviations presented in Table 3, however, indicate substantial variability in responses to scales on this measure.

Satisfaction with Social Support

A trend towards significance was found between groups regarding satisfaction with social support from family and friends, $t(36)=1.99$, $p=.054$, $g=.65$, with higher ratings made by the high resilience group ($M=4.98$, $SD=.85$) than the low resilience group ($M=4.41$, $SD=.91$). No significant differences were found between the low

(*M*=5.0, *SD*=1.4) and high (*M*=5.4, *SD*=0.7) resilience groups with regards to their satisfaction with social support from partners, *t*(36)=-1.3 , *p*=.201 , *g*=.43.

Coping Styles

Items on the BriefCope measure were comprised of the following coping styles: self-distraction, active coping, denial, substance use, use of emotional support, use of instrumental support, behavioural disengagement, venting, positive reframing, planning, humour, acceptance, religion, and self-blame. No significant differences were found between groups regarding utilisation of any of the coping styles. Means and standard deviations for the BriefCope subscales are presented in Appendix I.

Clinical Psychopathology

The SCL90-R was used to assess current symptoms of psychopathology to enable comparisons between the low and high resilience groups. Table 4 displays the means standard scores, standard deviations, t-tests analysis results, and effect sizes for each group on the subscales and total scores indices for the SCL90-R.

Table 4

Group means, standard deviations, t-test results, and effect sizes for each subscale and total score index on the SCL90-R

Subscale	Group				Independent Samples t-test		
	Low		High				
	M	*(SD)*	*M*	*(SD)*	*t(36)*	*p*	*g*
Somatization	61.6	(11.9)	48.1	(11.5)	3.5	.001	1.16
Obsessive-C	66.1	(9.2)	52.6	(10.7)	4.1	<.0001	1.34
Interpersonal-S	58.9	(10.4)	48.6	(8.1)	3.4	.002	1.13
Depression	63.4	(8.6)	51.2	(12.2)	3.4	.002	1.12
Anxiety	61.8	(12.7)	49.4	(10.4)	3.3	.002	1.09
Hostility	57.4	(9.6)	46.4	(8.8)	3.7	.001	1.21
Phobia	55.3	(10.0)	48.3	(7.8)	2.4	.021	0.79
Paranoia	55.2	(11.0)	45.5	(7.6)	3.0	.006	1.05
Psychosis	59.9	(12.2)	49.3	(8.2)	3.2	.003	1.05
GSI	64.2	(10.5)	48.0	(12.5)	4.2	<.0001	1.39
PSDI	61.3	(9.0)	47.3	(12.5)	3.8	.001	1.24
PST	61.4	(9.0)	49.5	(10.2)	3.7	.001	1.23

As demonstrated in Table 4, the low resilience group reported significantly higher mean scores on all subscales and total score indices on the SCL90-R, and

substantial effect sizes were demonstrated for each of these. Additionally, the mean scores of the low resilience group on the dimensions of Obsessive-Compulsive, Depression, and the GSI exceeded 63, therefore fulfilling the criterion for clinical caseness. None of the mean scores for the high resilience group approached the clinical criterion.

CAPS

The Clinician Administered PTSD Scale (CAPS) was used to determine the presence of PTSD symptoms and enable comparisons between the groups. The CAPS considers both the Current PTSD and Lifetime PTSD symptoms reported by each participant to give a clear clinical picture of symptomatology. Table 5 presents frequency data and percentages per group for Current PTSD diagnostic categorisation as provided by the CAPS.

Table 5

Frequency data with conversion into percentages per group for Current PTSD diagnostic category from the CAPS.

PTSD Current	Low Resilience (n=16)		High Resilience (n=22)	
	Freq	(%)	Freq	(%)
Present	2	(12.5)	0	(0)
Absent	10	(62.5)	19	(86.4)
Sub-threshold	4	(25.0)	3	(13.6)

Chi square analysis demonstrated no significant associations between group with regards to current PTSD diagnostic categorisation proportions as provided by the

CAPS, $\chi^2(2, N=38)=4.1$, $p>.05$. Comparisons were then made between groups with regards to lifetime PTSD diagnostic categorisation proportions. Frequency data and percentages per group for lifetime PTSD diagnostic categorisation are presented in Table 6.

Table 6

Frequency data with conversion into percentages per group for Lifetime PTSD diagnostic category from the CAPS.

PTSD Lifetime	Low Resilience (n=16)		High Resilience (n=22)	
	Freq	(%)	Freq	(%)
Present	4	(25.0)	1	(4.5)
Absent	7	(43.8)	17	(77.3)
Sub-threshold	5	(31.3)	4	(18.2)

No significant differences were found between the groups with regards to the proportion of lifetime PTSD diagnostic categorisation, $\chi^2(2)=5.3$, $p=.07$. The high resilience group reported a higher frequency of individuals who were absent from lifetime PTSD or sub-threshold diagnostic categorisations. However, as many of the PTSD diagnostic categorisations demonstrate frequencies below 5, the robustness of these chi squared analyses is questionable.

Discussion

The present study explored the influence of resilience level on post- trauma responses in partners of individuals with a life threatening illness, considering psychological symptomatology and clinical outcomes together with examination of factors known to influence resilience.

The expectation that partners high in resilience would report greater satisfaction with support from the patient was not supported, with both groups demonstrating moderate to high satisfaction the support from their ill loved one. Whilst not statistically significant, the strong trend ($p = .054$) and moderate to high effect size found for high resilient partners' greater satisfaction with support from family and friends indicates meaningful differences in social support between the groups. These latter results concord with Chanlon and colleagues (n.d.) examination of key factors of distress and resilience in breast cancer survivors. Their results demonstrated that whilst female breast cancer survivors were especially satisfied with the social support received from their partners, family, and friends, the perceived support from friends alone reduced anxiety and promoted resilience (Chanlon, Howe, Peirce, O'Connor, & Woulfe, n.d.).

Consistent with predictions, a significantly greater number of psychological symptoms were reported by partners low in resilience, with these partners scoring significantly higher on every clinical domain of the SCL90R than partners high in resilience. Albeit the contention in the literature that the conceptualisation of resilience does not merely imply the absence of psychopathology (Mancini & Bonanno, 2006), it could be argued that the results of the present study suggest that those partners high in resilience are indeed differentiated from low resilience

partners on this basis, with those partners low in resilience demonstrating significantly higher results in this domain.

Unexpectedly, partners low and high in resilience did not significantly differ with regards to their subjective distress about the experience of their loved one's illness. However, a cursory look at the standard deviations indicates considerable variability in partners' responses. This may be a reflection of varying stressors associated with their experience, including where in the illness trajectory they are situated. One example may be the experiences, stressors, and perceptions of those partners whose loved ones are still receiving active treatment compared to those partners in the post-treatment phase of the illness trajectory. Indeed, caregivers are known to experience a variety of stressors at different stages of the illness trajectory (Given et al., 2004). For example, the receipt of diagnosis may be associated with feelings of shock, numbness, and disbelief regarding the prospect of a poor prognosis and, ultimately, the potential for losing their loved one to a life threatening illness. This period may also necessitate partners being involved in decisions about treatment, or having to assist in, or take on the full responsibility of, informing family members about the diagnosis. Alternatively, the treatment phase of the illness trajectory may engender more instrumental caregiving duties, such as the transportation of their loved one to treatments, managing patients' medications, and witnessing their loved one vulnerable and in pain and discomfort from noxious treatments or surgical procedures. For many partners, these treatment-related caregiving tasks may have to be fulfilled in conjunction with attempting to maintain normal household and financial responsibilities.

Similarly, despite results from the CAPS indicating that two partners from the low resilience group met diagnostic criteria for current PTSD and a greater

proportion of partners in the high resilience group were absent from meeting full or sub-threshold criteria, these results were found to be non-significant and not supportive of the expectation that a significantly larger proportion of low resilient partners would demonstrate posttraumatic stress symptomatology. Moreover, the present study's hypotheses were not supported when lifetime PTSD criteria were considered, as despite a trend towards significance being found in the higher proportion of high resilient partners absent from sub-threshold PTSD or PTSD diagnoses, the robustness of these results were questionable due to the inadequate number of expected frequencies per cell.

Despite its removal as a traumatic event in the DSM-5 (APA, 2013) it cannot be refuted that a life threatening illness has been commonly associated with psychological distress and the development of PTSD symptomatology and caseness in the literature (see Smith, Redd, Peyse, & Vogl, 1999, for a review) together with evidence of resilience in illness populations (Helgeson, Snyder, & Seltman, 2004). Given these considerations in the literature, together with the present study's findings, there is some question surrounding how the DSM-5 proposes to account for the development posttraumatic stress symptomatology as a consequence of one's exposure to a life threatening illness, whether directly or indirectly.

Coping

Our findings are inconsistent with previous studies in resilience and adaptation to trauma suggesting greater use of adaptive problem-solving coping approaches in higher resilient individuals (Marnocha & Marnocha, 2013) and greater use of avoidant coping strategies in low resilient individuals (Yi Frazier et al., 2009). There

may be a number of possible explanations for the lack of unexpected lack of differentiation found for coping strategies between the resilience groups.

Firstly, it is feasible that the disparity between results from prior investigations and the present study regarding coping strategies and resilience may have occurred as a result of the limited capacity of the BriefCope to effectively measure caregiving related coping strategies (Fitzell & Pakenham, 2010). For example, Pakenham's (2001) measure developed to assess coping in multiple sclerosis caregiving included such coping dimensions as relationship-focused coping, which is absent from the BriefCope (Fitzell & Pakenham, 2010). Relationship-focused coping strategies focus on maintaining (e.g., being empathic, compromise or negotiate with close others) or disrupting social relationships (e.g., blaming, ignoring, criticising, or minimising contact with close others). Caregivers with a greater inclination to use the latter negative relationship-focussed strategies have been found to have less satisfaction with their social relationships (Kramer, 1993). Hence, it is plausible that those partners inclined to use such negative means of relating to close others may effectively disrupt or damage these social resources accordingly, resulting in lower perceived satisfaction of the social support from these sources.

An additional explanation for the lack of differentiation of coping strategies between partners low and high in resilience may be due to the multifaceted nature of providing care to a loved one with a life threatening illness. The diverse challenges and demands inherent in partners' caregiving role may engender different perceptions of control that may entail varied coping strategies, and thus represent a greater sensitivity to context (Fitzell & Pakenham, 2010, p177). For example, the anticipatory anxiety related to their loved one's scan results may require different coping strategies compared to managing treatment side effects, or to undertaking

additional household duties. However, the current study did not examine the specific demands of caregiving with respect to coping strategies, which may be an interesting inclusion for future research with this population.

An alternate explanation for the absence of significantly higher use of adaptive coping strategies by partners high in resilience compared to those partners low in resilience is akin to the argument offered by Yi Frazier and colleagues (2009) regarding their lack of association between higher use of adaptive strategies for diabetes patients with high resilience resources. It may be that possessing adequate resilience is sufficient for dealing with the challenges from the experience of a partner's life threatening illness, and the selection and employment of coping strategies are less crucial for these partners compared to partners with low levels of resilience (Yi-Frazier et al., 2009).

Finally, research in the domain of stress and coping has demonstrated that the controllability of the stressor can impact the influence of coping strategies on adaptive responses (e.g., Lazarus & Folkman, 1984). More specifically, when the stressor can be controlled emotional focused coping is deemed as less adaptive (e.g. Vitaliano, DeWolfe, Maiuro, Russo, & Katon, 1990) and problem-focused coping shown to be more effective in one's adaptive responses with converse findings for when the stressors is uncontrollable (Taylor, 1991). There are many aspects impacting upon partners throughout the illness experience that are outside of their control, such as patient behaviours, decisions, and treatment adherence, as well as the uncontrollable nature of diagnosis, treatment success, and overall prognosis, that may not benefit from problem-focused coping approaches. Hence, as there may be variability in controllability of various stressors associated with partners experiences of a life threatening illness, this may predict that flexibility in coping approaches

from emotion to problem focused strategies are required, which may explain the equivalent results between coping styles employed by the partners.

Social Support

The utility of social support is dependent upon the degree to which it matches the needs of the recipient (Wills & Filer Fegan, 2001). Potential types of support may be attending to immediate practical or instrumental concerns, or the use of emotional support may be warranted to enable the individual to feel cared for and reassured that their concerns are validated (Edwards, Sakasa, & van Wyk, 2005). Indeed, social support is assumed to promote a person's capacity for mastery and self-worth in the face of the stressors encountered, through provision of emotional solace, offering cognitive and practical assistance, and sharing tasks (Hobfoll, Dunahoo, & Monier, 1995; Thoits, 1995). Consequently, it is plausible that the social support received from family and friends of low resilience partners may not have been commensurate with these partners' needs or expectations, relative to partners high in resilience.

Depression and satisfaction with social support

Hallaråker et al (2001) contend that depression may inhibit an individual's capacity and motivation to ask for support and assistance or engender withdrawal from their social network. Additionally, these authors point to the potential negative impact of one's longstanding depression on family and friends, such as rejection and negative affect (Hallaråker, Arefjord, Havik, & Mæland, 2001). The suggestion that depression can negatively impact upon ones satisfaction with social support (e.g., Hallaråker et al., 2001), may be a consideration in explaining the post trauma results presented here. Given the low resilience partners elevated scores on the depression

subscale of the SCL90R, the impact of mood cannot be discounted as a contributing factor to their comparatively lower satisfaction with support from family and friends than partners high in resilience. However, the retrospective cross sectional nature of the study precludes comment on the direction of causality. Thus future research using prospective longitudinal designs may help to address such limitations.

The present study, as with previous research regarding social support and adjustment to serious illness (e.g., Ownsworth et al., 2010), relied upon self-report measures of participants' support interactions. It has been argued that judgments about social support may be prejudiced by one's relationship satisfaction, mood, personality, or perceptions (Lakey & Cassady, 1990). The acknowledged negative associations between low resilience and relationship satisfaction and positive relationships between depression, neuroticism, pessimism, and low resilience may offer a possible explanation as to the lower level of satisfaction found for the support from family and friends reported by partners low in resilience. However, it does not explain the lack of significant differences in satisfaction with partner support between the two groups.

Satisfactory support from partners has been demonstrated to aid patients' recovery (e.g., Manne et al., 1997), though few studies have examined the inverse influence of partners satisfaction with support provided by the patient. Hence, by implication, there is a need to consider the influence of partners' satisfaction with support from their ill loved one as this may have the capacity to impact of both partner and patient outcomes. The results of the present study indicate moderate to high satisfaction with the support from patients by both partners low and high in resilience, but some differentiation between both groups when support from friends and family is considered. Our study's results suggest that high resilience partners

report greater satisfaction with the support provided by friends and family and demonstrate more adaptive post trauma outcomes. These findings concur with earlier research (Chanlon et al., n.d.) demonstrating that the only source of social support reported to have a significant positive influence on participants' psychological well-being was that provided by friends, thus emphasizing the importance of social support provided outside the intimate relationship. This is notable considering that, whilst men tend to rely on their spouses for social support, women seek support from friends and family members (Antonucci & Akiyama, 1987). However, as no significant differentiation between the proportion of male and female partners was found in the present study, gender does not appear to be a contributing factor to explain our findings

Resilience as an outcome?

The significant differentiation between high and low resilient partners on the basis of their post-trauma psychological symptoms lends some support to the contention of resilience as an outcome. It further lends support to previous conceptualisations of resilience based upon nil or minimal adverse psychological symptoms demonstrated by an individual following exposure to a potentially traumatic event (Bonanno, Rennicke, & Dekel, 2005). However, as this exploratory investigation is cross-sectional in nature there again remains the question of causality in respect to low resilient partners' significantly greater endorsement of psychological symptoms compared to those partners high in resilience. Prospective longitudinal analyses with this population are recommended to gather further evidence as to how resilience may be best conceptualised in partners of people with a life threatening illness.

Methodological Limitations

Due to low participant response rates the sample included partners in different phases of the disease trajectory (undergoing treatment, recently completed treatment, completed treatment some time ago, bereaved). The small size of the total sample precluded analysis of any differentiation between these sub-groups on the study measures. Hence, the combined difficulties of small sample size and some heterogeneity regarding partners' placements within the illness trajectory may have influenced the study's results. These methodological considerations highlight the need for future studies using large partner populations that would enable creation of homogenous sub-groups to be included for investigation.

The present study focussed on selected factors considered key in the resilience literature (e.g. coping and social support). Hence, the variables examined do not reflect an exhaustive list of factors considered influential in one's adaptation to trauma. Indeed the roles of cognitive appraisal and positive emotions have been demonstrated as key factors in theoretical models of stress, coping and adaptation to trauma (Lazarus & Folkman, 1984; Tugade & Frederickson, 2004). Whilst these factors are acknowledged as important, they were omitted from the present study due to participant burden considerations regarding the intensive multi-method approach used in the series of studies examining the influence of resilience on partner responses. Future research on this population should include measures of cognitive appraisal and positive emotions to determine their applicability within caregiving populations.

Despite the outlined methodological limitations inherent in this study, it would be an oversimplification to attribute the current findings between low and high

resilient partners as solely a product of these issues. Furthermore, there are strengths of the current design worthy of mention. Few studies have focussed exclusively on partners of individuals with a life threatening illness, tending to concurrently examine both the patients and their partners (e.g., Ey, Compass, Epping-Jordan, & Worsham, 1998), or include partners within a sample of 'family caregivers' (Kim & Given, 2008) which precludes examination of factors that may potentially influence partners responses and adaptation. Hence the current findings provide a unique insight into partners post trauma responses and outcomes regarding the illness experience.

Additionally, this study included an objective means of assessing post traumatic symptomatology through the use of the Clinician Administered PTSD Scale interview. This in conjunction with results from the IES-R provides further validity to our findings than would be expected from self-report measures alone, as relied upon by previous studies to assess posttraumatic stress symptoms and PTSD diagnosis (e.g., Pujol et al., 2013).

Implications

The present study broadens the literature regarding partners' adaptation to the illness experience by providing empirical evidence of the increased risk of psychopathological outcomes in low resilience partners. Based on these findings, vulnerable partners who could benefit from psychological intervention may be identified following diagnosis of their loved one's illness. More specifically, a validated measure of resilience, such as the Resilience Scale (Wagnild & Young, 1993), could plausibly be administered to partners to determine their level of resilience and low resilient partners offered additional support to assist manage the

stressors associated with the illness experience. The strong trend and moderate to high effect size found for high resilience partners to report greater satisfaction with support from friends and family suggests that interventions should focus on support needs and enhancing support satisfaction amongst low resilience partners.

Conclusion

Due to the paucity of research considering resilience in partners of people with a life threatening illness, an exploratory approach was adopted within the current study design. It represents a good starting point from which to further research the influence of resilience on partners responses and outcomes to the experience of their significant others life threatening illness. Moreover, this study underscores the importance for the development of interventions tailored to bolstering resilience in vulnerable partners and to deviate from the 'one size fits all' approach towards partner caregivers that has been present in both individual and dyadic interventions. To our knowledge, this is the first study to provide empirical support for the greater possibility of psychopathological outcomes in partners low in resilience and points to the need to develop interventions to assist these partners. Results from the present study also point to the need to consider the influence resilience on partners' satisfaction with social support from family and friends, which may bolster resilience and adaptive responses in vulnerable partners.

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CHAPTER 5

GENERAL DISCUSSION

General Discussion

Summary of findings

Although contemporary researchers have considered resilience and adaptive responses in patient populations (e.g. Helgeson, Snyder, & Seltman, 2004; Hou, Law, Yin, & Fu, 2010; Lam et al., 2010), this research has not extended to partners, who primarily fulfil the role of caregiver for the patient. Research deficits in this area identified by the review of the literature (*Chapter 1*) emphasized the overt focus on negative and pathological outcomes and lack of attention given to resilience and adaptive responses of partners caring for a loved one with a life threatening illness. This omission was identified as a major limitation of the current field, together with the predominant use of self-report measures, and underscores the need for more multi-method research designs and use of objective physiological and psychological measures of adaptation within this population. The present series of studies aimed to redress some of the imbalance stemming from the preponderance of previous research focussing on negative and pathological outcomes in partners caring for a loved one with a life threatening illness. Consequently, this thesis adopted a salutogenic perspective in exploring partners' responses to their loved ones illness, considering both adaptive and adverse outcomes. On the basis of review recommendations (*Chapter 1*), an exploration of pre, peri, and post-trauma factors known to influence adaptation was conducted with partners identified as high or low in resilience in order to determine whether these groups could be differentiated on self-report, clinical interview of post-trauma symptomatology, and physiological measures of adaptation.

Study 1 – Pre-Trauma

Pre-trauma factors of partners' optimism, mastery, and trauma history were explored in Study 1 (*Chapter 2*) through partners' responses to self-report measures. Surprisingly, the only factor found to significantly differentiate partners varying in their degree of resilience was optimism. As hypothesized, partners high in resilience reported greater optimism than partners classified as low in resilience. These results supported previous studies demonstrating a positive association between resilience and optimism (see Carver, Scheier, Miller, & Furford, 2009; Lee, Brown, Mitchell, & Schiraldi, 2008). Interestingly, the lack of differentiation in mastery between the partner groups was contrary to both the present study's hypothesis and prior examinations of the influence of mastery on adaptive responses to trauma (e.g., Reich & Zautra, 1981, 1990). Similarly, no significant differences between high and low resilience partners were found in regards to their trauma history, providing no support for literature emphasizing the deleterious impact of cumulative exposure to trauma on one's functioning (see Bremner, Southwick, & Charney, 1995) nor the potential for moderate levels of previous exposure to adversity to increase one's opportunity to foster resilience (Seery, Holman, & Silver, 2010).

Study 2 – Peri-trauma

As mentioned in the review of the literature (*Chapter 1*), a gap remains in our understanding of partners' peri-trauma physiological and psychological responses, relative to patients directly impacted by their illness. However, the emphasis on previous psychophysiological examinations has been predominantly directed at comparing patients, and other trauma populations, with and without a diagnosis of PTSD (e.g. Pitman et al., 2001). The few physiological investigations that have

examined the influence of resilience on peri-trauma responses have, again, been focussed on those directly impacted by a traumatic event (e.g., Tucker et al., 2007). Hence, Study 2 (*Chapter 3*) significantly adds to the literature by being the first study to examine partners' peri-traumatic physiological and psychological responses to common illness-related stressors (diagnosis, treatment, fear of recurrence) in the disease trajectory. Results from Study 2 found no differentiation between partners low and high in resilience on both physiological and psychological peri-traumatic responses. Both groups of partners showed uniform high distress to the personalised illness-related imagery, which persisted past the incident (e.g. receipt of diagnosis) stage of the script, refuting the hypothesis that partners high in resilience would exhibit faster cardiovascular recovery than partners low in resilience. These findings do not concur with those of previous studies demonstrating faster cardiovascular recovery in high resilience individuals (Tugade & Frederickson, 2004) nor support the conceptualisation of resilience as a prompter return to normal functioning following adversity as contended in the resilience literature (e.g., Waugh, Frederickson, & Taylor, 2008). However, the results from Study 2 provide empirical support for the assertion that an individual can be both distressed and resilient simultaneously (e.g., Zautra, Hall, & Murray, 2008) and serves as a timely reminder that the presence of resilience does not imply the absence of distress. This accords with models of responses to trauma that specify a transient decline in one's functioning at the peri-trauma stage (e.g., Bonanno, 2004; Layne, Warren, Watson, & Shalev, 2007) irrespective of the trajectory of response to the traumatic event (e.g., resilience, recovery, delayed distress, chronic distress). Study 2 notably contributes to the literature by being the first to provide objective empirical support for these models using a population of partners of individuals with a life threatening

illness. A further empirical basis provided by Study 2 suggests that individuals indirectly impacted by a traumatic event, namely a life threatening illness, demonstrate comparable peri-traumatic responses to those impacted directly. These parallels are noteworthy as they suggest that existing models of adaptation to a life threatening illness may equally apply to partners' experiences of this trauma and, consequently, emphasize the need for provision of interventions targeted at this population to enhance the probability of more adaptive outcomes both during and as a consequence of, their experience.

Results from Study 2 may also address the aforementioned discord in the literature regarding whether resilience may be best conceptualised as a trait, process, or outcome (*Chapter 3*). More specifically, results from Study 2 suggest that, as a trait, resilience may not better prepare partners for diagnosis, treatment, or fear of recurrence for a loved one's life threatening illness. It could further be argued that, as an outcome, resilience does not seemingly influence partners' peri-traumatic responses to these same illness-related events. It may be that the influence of resilience on partners functioning and responses may be evident in the post-trauma phase of the illness trajectory, and therefore warranted examination of the influence of resilience on partners post-trauma responses to their loved one's illness accordingly.

Study 3 – Post trauma

Consequently, Study 3 (*Chapter 4*) employed both subjective self-report measures and objective clinical interview data to assess the factors of coping styles, social support, psychological symptoms, and post-traumatic stress symptomatology in an exploration of partners post trauma responses. The hypothesis that partners low in resilience would report greater post-traumatic symptomatology was not supported.

Whilst partners' satisfaction with social support from the patient was found to be indistinguishable between the groups, a strong trend towards significance was found for high resilience partners to report greater satisfaction with the social support received from family and friends. Whilst not statistically significant, the moderate effect size (g = .65) reported for high resilient partners greater satisfaction with social support from family and friends suggests that these differences are meaningful. The latter of these results is consistent with expectations and previous research findings of greater satisfaction with social support from close others for those higher in resilience (Wilks & Croom, 2008). Contrary to both the hypothesis and findings from previous studies (Yi, Smith, & Vitaliano, 2005), was a lack of differentiation between the coping styles of high and low resilient partners. However, strong support was found for the hypothesis that partners low in resilience would score higher on all measures of negative psychological symptoms than partners high in resilience. Consequently, this study considerably broadens the literature as it is the first to provide empirical support for the greater vulnerability to psychopathological outcomes in partners low in resilience. These results also suggest that partners' satisfaction with support from family and friends may inform interventions that deviate from the "one size fits all" approach towards partner caregivers by enhancing resilience and adaptive responses in vulnerable partners facing the stressors engendered by their loved one's life threatening illness.

Implications

Optimism and Social Support

Collectively, the results suggest that partners high in resilience have markedly greater optimism and are more satisfied with the support provided from family and friends, and have demonstrated better psychological outcomes resulting from the

experience of their loved ones illness, relative to partners low in resilience. These results are compatible with prior research on cancer populations concluding that better adaptation to disease is related to social support from friends and family (e.g., for reviews see Blanchard, Albrecht, Ruckdeschel, Grant & Hemick, 1995; Helgeson & Cohen, 1996).

It has been stated that people possessing a negative view regarding the support offered by others may repel it, receiving and perceiving less social support accordingly (Tusaie & Dyer, 2004; Varni, Setogichi, Rappaport, & Talbot, 1992). Consequently, it has been argued that "an individual is not a passive recipient of social support, but the process of social support is reciprocal and dynamic" (Tusaie & Dyer, 2004, p.4). It is plausible that low resilience partners may perceive the support provided by family and friends to be inadequate, which may further discourage both their acceptance of such provided support and their pursuit of alternate satisfactory sources of support. This may lead these partners to ultimately obtain less support.

Social support is believed to be associated with optimism as it may serve to assist individuals concentrate on the possible benefits and constructive aspects of demanding and stressful situations (Pearlin & Schooler, 1978), presumably from problem-solving, encouragement, and sense of connectedness and reassurance from others. Furthermore, not only do optimists generally obtain greater social support, but they tend to mobilise greater social support throughout challenging or traumatic experiences (Dougall, Hyman, Hayward, McFeeley, & Baum, 2001). Individuals with lower optimism may benefit from social support's favourable impact on psychological outcomes (Applebaum et al., 2013). This therefore underscores a

possible need for interventions that cultivate social support in low resilient partners caring for a loved one with a life threatening illness.

There is certainly evidence to suggest better psychological functioning in optimistic individuals (see Carver, Scheier, & Segerstrom, 2010 for a review) and the buffering effect of social support on vulnerability to psychological distress (Cohen & Willis, 1985). Previous research has also reported various relationships between optimism, social support, and psychological wellbeing. For example, optimism was found to moderate the relationship between anxiety and social support, such that there was a robust negative relationship between social support and anxiety in advanced cancer patients with low optimism (Applebaum et al., 2013). Moreover, social support was demonstrated to be a 'potent mediator' of the relationship between distress and optimism in disaster rescue workers exposed to traumatic situations, such that optimism served to attract more people with which to build more relationships and subsequently enhance optimistic workers' accessible sources of social support in stressful or distressing circumstances (Dougall et al., 2001).

Anecdotally, optimistic individuals appear to be easier to associate with, to spend time with, and to befriend. The behaviour and perspectives of optimistic individuals may be generally deemed attractive to others and make it easier for others to support these individuals, whereas the negative outlooks of those lower in optimism may serve to elicit greater discomfort and feeling overwhelmed in others. Indeed, the idea that optimistic individuals are more positively responded to than more pessimistic individuals has received general support (e.g. Carver, Kus, & Scheier, 1994), and has been expressed by other researchers examining the relationship between optimism, social support and adjustment to illness (Trunzo &

Pinto, 2003). Aforementioned research (*see Study 2, Chapter 3*) on patients' trajectories of response to their breast cancer diagnosis (Helgeson et al., 2004) further substantiated better psychological functioning from patients with high personal and social resources, and asserted that individuals with greater personal resources are more likely to have greater available social resources and know when to utilise these accordingly.

When social support is considered, it is arguable that optimistic individuals' tendency to view aspects in a positive light may extend to their relationships. Hence, individuals high in optimism may have greater satisfaction with support relationships even if their personal situation is not ideal (Carver et al., 2010). In fact, this assertion has been supported by research on relationship satisfaction in close relationships, with the considerably higher relationship satisfaction reported by optimists, relative to pessimists, found to be mediated by the perceived relative supportiveness of their loved one (Srivastava, McGornigal, Richards, Butler, & Gross, 2006). Importantly, Srivastava et al's (2006) study controlled for the possibility that loved ones of optimistic individuals are inherently more likely to be supportive based on the 'likeability' of optimists, as opposed to more pessimistic individuals. These findings suggest that partners perceptions regarding the adequacy of support received from close others may have contributed to the differences found regarding their satisfaction with support from family and friends.

In a similar vein, it may be tentatively argued that low resilience partners lower satisfaction with the perceived social support from family and friends results from a discrepancy between expected versus actual provision, and in this way does not match the needs of these partners. A further contention regarding adaptive use and satisfaction with social support from friends and family may be related to partners'

perception of others' support, and willingness to confide in those perceived as unreceptive or unable to provide appropriate support. The importance of one's perception that they will be listened to and supported appropriately by close others has been recognised as a key factor in the benefit of individuals discussing traumatic experiences (Bonanno, Rennicke, & Dekel, 2005; Kelly & McKillop, 1996). In short, speaking about one's traumatic or stressful experiences may only be efficacious when those listening adopt a broad-minded approach and are amenable to help (Mancini & Bonanno, 2006). Thus, findings from the current series of studies further underscore the importance of one's perceptions of the qualities of their social environment upon their functioning and coping in response to traumatic experiences, and may serve to partially account for the reduced satisfaction in support from family and friends reported by partners low in resilience.

Hence, it may be fruitful for clinicians to assist low resilience partners examine their social milieu, namely their personal network of prospective helpers, supporters, and listeners (Mancini & Bonanno, 2006), to enable assessment of the areas in which these partners may have sources for disclosure and receipt of emotional support, practical support, and identify gaps in these resources that may require therapeutic attention.

Clinical Implications – Optimism and Social Support

The presented evidence of a positive association between optimism and social support, together with evidence of a potential greater benefit of enhancing social support in those low in optimism (e.g., Applebaum et al., 2013), warrants that, in addition to screening for level of resilience, factors of optimism and social support could be screened in partners following diagnosis of their loved ones life threatening

illness. Akin to the clinical recommendations for improving mental health outcomes in advanced cancer patients by Applebaum and colleagues (2013), partners low in optimism may profit from either targeted interventions that foster the expansion of social support networks or direct provision of social support through a group therapy approach (Applebaum et al., 2013).

Important implications for research and clinical practice can be derived from the present studies. The collective findings from these studies suggest that low resilience partners may benefit from interventions that foster optimism and associated cognitive flexibility (as mentioned in *Study 1*, *Chapter 2*), to enable these partners to potentially broaden their perceptions and associated behaviours and coping when faced with distressing circumstances, and increase the likelihood of enhancing their social support networks both quantitatively and qualitatively.

Whilst targeting enhancement of optimism in partners low in resilience may not be without challenge clinically, there is some inference that change can indeed occur (Segerstrom, 2006) and that optimism may be malleable (Carver & Scheier, 2005). Cognitive Behaviour Therapy (CBT) interventions appear to have the most potential to increase optimism (Seligman, 1990) by fostering positive cognitions that serve to reduce distress and promote a renewed endeavour towards desired outcomes (Carver, et al.,, 2010). Pretzer and Walsh (2001) contend, however, that increased optimism does not necessarily transpire from CBT's efficacy in ameliorating cognitive distortions and reducing depression. Further debate surrounds the capacity of CBT based interventions to amend prolonged and pervasive biases of dispositional optimism and pessimism (Pretzer and Walsh, 2001) and whether an induced

optimistic view could be permanent and comparable in beneficial effects as those stemming from an inherently occurring optimistic view (Carver et al., 2010).

Resilience & protective factors (e.g., personal and social)

Traditionally, helping professionals have held a persistent belief that there is a higher likelihood that pathology will ensue in individuals subjected to greater emotional and social risk (Glicken, 2006). However, as mentioned previously, not all those exposed to adversity will develop pathological outcomes (e.g. Kessler et al., 1995). Indeed, research regarding the influence of risk factors on outcomes suggests that risk factors predict certain types of psychological dysfunction in only 20% to 50% of high-risk populations (Rutter, 1990; 2003). Conversely, positive outcomes appear to be predicted from protective factors in 50 to 80 percent of these populations (Rutter, 1990; 2003).

Collectively, the results from the present series of studies imply that resilience may be a key element of a protective process operating against anxiety, PTSD, depression and other psychopathology, and has a strong positive relationship with optimism. Thus, akin to Fletcher and colleagues (2013) recent contention, resilience "can be thought of as a dynamic process that both protects an individual in adverse situations and enhances his or her therapeutic outcomes against risk factors" for trauma induced psychopathology (Fletcher et al., 2013, p 275), for example anxiety and depression (Tusaie & Dyer, 2004).

Moreover, the collective findings from these studies suggest that the mechanisms to improve resilience may lie in enhancing personal (e.g., optimism) and external (e.g., social support from family and friends) protective factors as opposed to simply decreasing risk factors (e.g., anxiety, depression).

Fletcher and colleagues (2013) argued that clinicians should examine populations who have been exposed to and have overcome adversity or potentially traumatic events in order to measure the factors associated with resilience and adaptive responses, and achieve a better understanding of how to enhance resilience in vulnerable individuals. The present studies have certainly examined a population that has been exposed to various potentially traumatic experiences and stressors during the course of the illness trajectory and indicate that a good proportion of these partners have demonstrated resilient outcomes in spite of these adverse experiences. A key therapeutic consideration based on these findings may then be to direct interventions that augment resilience and enhance protective factors (e.g., both internal and external resources) as opposed to concentrating on the amelioration of risk and adverse psychological outcomes. Hence, clinicians may benefit from firstly concentrating on internal resources that have been known to enhance one's resilience through the use of strength based approaches to empower clients to maintain an optimistic outlook when interpreting stressors (Fletcher et al., 2013).

Moreover, our results suggest that external resources, namely social support from family and friends, are also a consideration for clinical intervention. More specifically, building satisfactory support systems from family and friends that may help buffer against the stressors faced by partners throughout the illness experience (Applebaum et al., 2013).

Responses to Trauma

Albeit the thesis was not longitudinal in design, it could be argued that the combined results from *study 2* (Chapter 3) and *study 3* (Chapter 4) present some support for the aforementioned trajectory models of response to trauma (Bonanno,

2004; Layne et al., 2007). *Study 2* provided objective evidence for partners' experiencing a transient disruption to normal functioning at the peri-traumatic stage of diagnosis, treatment, and fear of recurrence experiences. When post-trauma outcomes were examined in partners low and high in resilience in *Study 3*, results support these models with reference to high resilience partners apparent lack of pathological outcomes and return to 'normal functioning' whilst the psychological distress in those partners low in resilience appears to persists and indicate their significantly greater vulnerability for the development of adverse psychological outcomes. As baseline measures of psychological distress could not be assessed in this series of studies, due to the retrospective nature of the design, we are unable to provide an index of change in distress over time in partners or comment on partners pre-trauma psychological functioning and whether this is akin to the presented models. Future research using prospective longitudinal design may be able to elucidate such trajectories of partners based on their level of resilience. However, such research designs are inherently difficult to employ when diagnosis of a life threatening illness is concerned, as the diagnosis is typically unanticipated and therefore poses a difficulty in recruiting individuals prior to diagnosis. Only large scale longitudinal population studies may offer a means of measuring any pre-trauma analysis in partners accordingly, which poses a challenge for relatively small populations, such as in Tasmania. Thus, the studies presented here are an important starting point for future research in adaptation and resilience in partners of serious ill individuals. Moreover, these studies reflect the first objective measurement of the influence of resilience on partners' peri and post-trauma responses, and appear to provide support for the aforementioned empirical models of responses to trauma

used with populations directly impacted by traumatic events (e.g., Bonanno, 2004; Layne et al., 2007).

Conceptualising Resilience

The aim of this thesis was not to add to the debate with regards to how resilience may be best conceptualised. However, it does add to the literature in providing an empirical basis that resilience does not occur in the absence of distress in partners of seriously ill individuals, as those identified as high in resilience demonstrated equivalent levels of peri-traumatic physiological and psychological distress. Further, those partners high in resilience seemingly 'bounced back' from this peri-traumatic distress according to post trauma psychological symptoms measures examined in *Study 3*, whilst low resilience partners post-trauma outcomes demonstrated a persistence of psychological distress and symptomatology. Considering these findings, it is arguable that resilience could indeed be viewed as an outcome in this population. However, it is important to acknowledge that resilience as a process cannot be overlooked, and the findings from this thesis may provide some support for conceptualisations of resilience as a protective process against negative psychological outcomes (Fletcher et al., 2013). Further research, however, from various populations indirectly or directly exposed to traumatic experiences, and using large scale stringent research designs are required to add further knowledge and comprehension as to how resilience is best defined.

Early Interventions

The capacity for resilient individuals to 'bounce back' to normal functioning following adversity has been demonstrated in research including responses to the 9-11 World Trade Centre terrorist attacks. For example, within four months following

the 9-11 terrorist attacks estimates of PTSD were reported to have dropped by almost two thirds (Gist & Devilly, 2002). Gist and Devilly (2002) asserted that their findings underscored the "counterproductive nature of offering a treatment with no demonstrable effect, but demonstrated potential to complicate natural resolution" (Gist & Devilly, 2002, p 742). Introducing psychological intervention too early following trauma exposure may impede one's natural development of resilience and that resilience is demonstrated when individuals return to normal functioning on their own and when they are effectively supported socially and emotionally.

CISD/psychological debriefing interventions

Prophylactic interventions, such as Critical Incident Stress Debriefing (CISD), have received mixed support in the research literature with proponents arguing it is a prevalent treatment that meets fundamental needs of trauma victims (Robinson, 1995) whilst others have argued for the limited efficacy and potentially deleterious impact for individuals who may not have required psychological intervention (e.g., Litz, Gray, Bryant, & Adler, 2002; Rose, Bisson, Churchill, & Wessley, 2002). The uniform application of such an intervention without due consideration to differentiating the vulnerable from the resilient individuals could be argued to be a contributing factor to its limited efficacy in achieving desired outcomes for those exposed to potentially traumatic experiences (Rabstejnek, n.d.).

The intention of psychological briefing is to decrease the psychological morbidity arising from exposure to potentially traumatic events (Hodgkinson & Stewart, 1998). Two chief aims for this form of intervention have been proposed: to moderate the psychological distress following exposure to trauma incidents, and to preclude the development of pathological outcomes, such as PTSD (Rose et al., 2002). Whilst particularly promoted for use with military and emergency personnel,

there have been wide-ranging circumstances in which debriefing has been utilised, including families of children receiving bone marrow transplantation, and patients recovering from cancer (cf Rose et al., 2002).

It has been postulated that the efficacy of such prophylactic interventions could be improved by directing them exclusively to people with a high vulnerability to developing pathological post trauma outcomes (e.g. Litz, Gray, Bryant, & Adler, 2002). However, there have been difficulties in identifying these individuals. Whilst it would be tempting to target individuals exhibiting initial symptoms or high distress following trauma, there is evidence to suggest that those experiencing high initial distress may be more susceptible to the adverse consequences from such an approach (Mayou, Ehlers, & Hobbs, 2000). Moreover, studies have demonstrated that a high degree of psychological distress symptoms experienced by individuals during and immediately following exposure to trauma do not necessarily translate into longer terms pathological outcomes, with many of these initial distress symptoms remitting relatively promptly (Helgeson et al., 2004). Hence, provision of interventions based on initial distress symptomatology does not appear to be a beneficial approach to improving outcomes. Indeed, the results of the present studies have demonstrated that those identified as higher in resilience were shown to have no significant reporting of post-traumatic stress symptomatology or longer term post trauma pathological responses despite their considerable peri-traumatic distress to illness related events.

By definition, those characterised as resilient will experience remission from initial psychological distress or experience minimal disruption to their normal functioning, which essentially renders the intentions of prophylactic interventions such as CISD - to reduce one’s distress and vulnerability to psychopathological

outcomes - null and void. By increasing cognizance of psychological distress debriefing interventions "may paradoxically induce that distress in those who would otherwise not have developed it" (Rose et al., 2002, p.11). Moreover, there appears to be an explicit assumption in psychological debriefing that patterns of responses to trauma are homogenous and can be somewhat portended (Rose et al., 2002). Regardless of the potential for people to be exposed to a uniform traumatic event, they differ in various aspects outside this exposure, and by focusing on the traumatic event may detract from other key factors (e.g. psychosocial) that differentiate individuals. Hence, subjecting all individuals to a 'one size fits all' therapeutic approach based on their exposure potentially traumatic events/experiences does not appear to be the most beneficial approach for partners whose loved one has a serious illness.

The results from *Study 3* (Chapter 4) demonstrating adaptive outcomes for partners high in resilience seemingly accord with Mancini and Bonanno's (2006) argument that a considerable proportion of individuals cope successfully from exposure to traumatic events without formal psychological intervention, whilst a subset of individuals with protracted or clinically significant difficulties are suitable candidates for intervention. In brief, these authors stipulated that psychological interventions not only carry iatrogenic risks and therefore should only be advisable for those deemed vulnerable for negative psychological outcomes, but can be informed by factors differentiating high resilient individuals from those struggling to adapt to their traumatic experience (Mancini & Bonanno, 2006). Mancini and Bonanno (2006) contend that there currently remains a deficiency of adequate assessment markers to identify those individuals of apposite risk to warrant early prophylactic measures, and postulate that eventually this may be able to be achieved.

Considering the outlined difficulties in identifying individuals at risk of developing adverse psychological or psychiatric outcomes following trauma, it is plausible that the results from the present studies may provide a means of screening partners following diagnosis of their loved ones illness for their level of resilience, using a validated measure such as the Resilience Scale (Wagnild & Young, 1993) utilised in the present studies. Given that the findings from *Study 3 (Chapter 4)* adequately identified those partners vulnerable to negative post- trauma psychological outcomes from their level of resilience, namely those low in resilience, this may represent an opportunity for targeting low resilience partners who may benefit from preventative interventions. More specifically, partners identified as low in resilience may be offered targeted prevention interventions following diagnosis of their partners life threatening illness, that are developed with the aim of promoting and enhancing these partners optimism and social support from family and friends. High resilience partners, however, based on the results demonstrating their reduction in distress and lack of significant adverse post trauma outcomes (*Study 3*), may not benefit from such early intervention approaches which may have a deleterious impact on their capacity to naturally develop resilience accordingly. It should be cautioned, however, that due to the retrospective cross sectional nature of the presented studies, these findings may not be generalizable outside the partner population examined here. Hence the need for future research with larger scale populations that include subgroup analysis to address the heterogeneity within partner populations.

Heterogeneity in Caregiving Partners

As argued in the review of the literature (*Chapter 1*), a key limitation in the previous research on partners is sampling methodology. Predominantly, previous

studies have used broad ‘family caregiver’ populations that have included partners amongst, caregiving offspring, siblings, and even friends of patients (Kim & Given, 2008), examined patient/partner dyads (Ey, Compass, Epping-Jordan, & Worsham, 1998) or focused on the impact of partners on patient outcomes (Manne et al., 1997) Such marked heterogeneity can adversely influence the generalizability and applicability of findings to a given population of caregivers and does not allow for the identification of unique aspects that may facilitate adaptation in partners caring for a loved one with a life threatening illness. Consequently, this may be a contributing factor to the dearth of understanding of resilience and adaptation in this population of partners. The present series of studies addresses these methodological shortcomings by exclusively examining partners’ responses to the experience of their loved one’s illness, specifically the influence of their level of resilience upon these responses. Thus, the results from these studies were able to capture responses and outcomes that were indicative of this partner population accordingly without having to disentangle these from heterogeneous family caregiving samples.

An important outcome of the current series of studies is that results refute the widely held assumption of homogeneity of partners of seriously ill individuals. However, it must be acknowledged that the heterogeneity within the partner population examined may have suppressed the capacity to identify differences between the partner groups (high and low resilience). This may have particularly been the case in both personal (e.g. education, socio-economic status) and illness-related demographics (e.g. time since diagnosis) and the domains of partners’ coping styles and partners subjective distress regarding the impact of their loved one’s illness. These potential aspects of heterogeneity could provide challenges to targeted interventions, however the indisputable need for interventions that promote and

safeguard the health of partners emphasize the importance of further research of this kind.

Gaugler and colleagues (2007) also contend that a majority of research on family caregivers is apt to consider caregivers as homogenous. These authors argue that their results regarding resilience and dementia caregiving outcomes emphasized the need to identify possible heterogeneity of caregivers when investigating adaptation and health outcomes over time. They also recommend the formation of typologies based on such constructs as resilience to assist in the development of caregiving interventions (Gaugler, Kane, & Newcomer, 2007).

Given the outlined considerations regarding homogeneity and heterogeneity, future research design should incorporate larger partner populations. This may provide an opportunity to create homogenous sub-groups (e.g. time since diagnosis) that would enable further examination of any similarities and differentiation between partners caring for a loved one accordingly.

Methodological Considerations

Limitations

The cross-sectional design of the studies precludes generalization of the presented findings outside of the examined population. Despite the extensive recruitment methods utilised, it is possible that those who participated were not overly distressed and felt able to devote their time to research participation. Therefore, it is possible that those partners considerably distressed or overwhelmed by their experiences, or were reluctant to participate due to the constraints inherent in their caregiving role. Consequently, such selection bias may have impacted the current sample and generalizability of results beyond the study population.

As mentioned in *Chapter 4*, due to the low participation rates and small sample size accrued from partners of patients both diagnosed and treated for their serious illness, inclusion criteria was subsequently expanded to include partners of those patents still undergoing or finalising treatment. Hence, the sample included partners in different phases of the disease trajectory (undergoing treatment, recently completed treatment, completed treatment some time ago, bereaved). Considering that the stressors experienced by partner caregivers vary throughout the different stages of the illness trajectory (Given et al., 2004), this heterogeneity may have influenced the results. The small size of the total sample precluded analysis of any differentiation between these sub-groups on the study measures. Moreover, the small sample size did not allow for the creation and analysis of homogenous sub groups to address the potential limitations from aspects of heterogeneity within the sample of partners. Hence, the difficulties experienced in recruiting partners therefore opened up the possibility of confounding results and highlighted the need for future studies on large partner populations able to comprise homogenous sub-groups for investigation.

As noted previously, whilst the thesis focussed on selected factors considered key in the resilience literature, these variables do not represent an exhaustive list of factors considered influential to one's adaptation to trauma. Cognitive appraisal and positive emotions have been identified as key factors in both theoretical models of stress and coping and adaptation to trauma (Lazarus & Folkman, 1984; Tugade & Frederickson, 2004). Although acknowledged as important, these factors were omitted from the present study due to participant burden considerations regarding the intensive multi-method approach used in the series of studies. Future research on this population should include measures of cognitive appraisal and positive affect to

enable assessment of their applicability with theoretical models of stress and coping and resilience to trauma.

Strengths

Previous studies have criticised the recruitment methods employed for partners of patients diagnosed with a serious or chronic illness (e.g., Cochrane & Lewis, 2005). These have included asking the patient whether their partner may be interested in participating in the research study which can enable the patient to decline their partners participation in the study without the partner's knowledge, subsequently denying the partner an opportunity for their responses and experiences to be considered. It has been acknowledged that recruitment methods for partners should incorporate public campaigns "to maximise sample size while minimising biases inherent in relying on just one recruitment method" (Cochrane & Lewis, 2005, p 330). Thus, despite the small sample size, the multi-method approach to recruitment (Refer Appendix C) employed by the present thesis both directly addressed these criticisms and proposed recommendations, thus providing the best opportunity for the present studies to obtain a sample that is not subjected to bias from recruitment design.

The use of multiple levels of analysis (including physiological and biological measures) to examine how individuals respond and adapt to potentially traumatic events remains a largely underutilised research approach (Wald, Taylor, Asmundson, Jang, & Stapleton, 2006) despite acknowledgement regarding its importance of providing more objective and valid means of assessment (Curtis & Cicchetti, 2003). Rather, retrospective self-report measures have been predominantly adopted within previous studies, to the detriment of a comprehensive methodological approach. The

present thesis employed varied objective and subjective methods (e.g. self-report, structured clinical interviews, psychophysiological measures of distress) to address the methodological shortcomings of previous research and to enhance the validity of research findings.

Conclusions

This exploratory research reflects a novel examination of the role of resilience in influencing partners' responses to their loved one's illness. The presented series of studies have expanded existing knowledge regarding factors influenced by partners' resilience, and aided in identifying those struggling to adapt to the experience of their loved one's life threatening illness.

The various strengths encompassed within this thesis include:

1. Redressing of the imbalance stemming from the preponderance of previous deficit-focused research in partners caring for a loved one with a life threatening by adopting a salutogenic perspective, considering both adaptive and adverse outcomes.
2. Providing an empirical basis of examining the influence of resilience on optimism, mastery, and prior trauma on partners responses to the experience of their loved one's a life threatening illness
3. Being the first to examine partners' peri-traumatic physiological and psychological responses to common illness-related stressors (diagnosis, treatment, fear of recurrence) in the illness trajectory, thus significantly adding to the literature in this regard.
4. Being the first to provide objective empirical support for models of responses to trauma (e.g., Bonanno, 2004; Layne et al., 2007) using a population of partners of individuals with a life threatening illness,

suggesting that existing models of adaptation to a life threatening illness may equally apply to partners' experiences of this trauma

5. Being the first to provide empirical support for the greater vulnerability to psychopathological outcomes in partners low in resilience

Collectively, the studies comprising this thesis represent a good starting point from which to further research the influence of resilience on partners responses and outcomes to the experience of their significant others life threatening illness. Moreover, this thesis emphasizes the importance of developing interventions tailored toward bolstering resilience, optimism, and social support in low resilient partners facing the challenges experienced in their loved one's life threatening illness, thus deviating from the 'one size fits all' approach towards partner caregivers that has been present in interventions to date. It is recommended that further research adopting similar intensive designs be undertaken to determine whether the results of the current series of studies are replicated with larger scale samples.

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Appendices

Appendix A

Date:_____ Participant # _____

Demographic Information

1. Age:

2. Sex (please tick appropriate box): Male ☐ Female ☐

Illness Information

1. Who was it that had the life threatening illness (please tick appropriate box):

   You ☐ Your partner ☐

2. Type of illness: _____

3. How long did you or your loved one have symptoms before the diagnosis was made?

   _____

4. How long has it been since the diagnosis of the illness? _____

5. Was there treatment involved? Yes ☐ No ☐

6. If yes, how long was the period between diagnosis and onset of treatment?

   _____

7. What type of treatment(s) was provided? _____

   _____

8. What were the side effects of the treatment(s)? _____

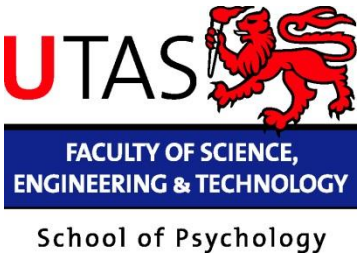
   _____

9. Was the treatment successful? _____

10. Has there ever been a recurrence of the illness? Yes ☐ No ☐

Appendix B

University of Tasmania Information Sheet and Consent Form



The Traumatisation Process and Partners of Individuals with Life Threatening Illnesses

The current project is being conducted by Dr Janet Haines and Miss Kym Nutting of the School of Psychology at the University of Tasmania as part of Ms Nutting's Doctorate in Psychology (Clinical) research thesis requirements.

What is the purpose of this research?
The purpose of the project is to examine the psychological responses to a partner's life threatening illness. In particular, the study aims to examine the psychological and psychophysiological reactions of partners of people with life-threatening illnesses to illness-related events, namely, diagnosis, treatment and fear of symptom recurrence. Psychophysiological reactions refer to changes in heart rate and breathing rate.

Who is invited to participate?
We are seeking people who have partners that have been diagnosed and treated for a life threatening illness.

What will you be asked to do?
If you agree to participate, the nature of your experiences will be discussed with you. In your first session you will be interviewed about your experience of your partner's life threatening illness as well as an emotionally neutral event, such as making a cup of coffee. This information will be recorded on audiotape. The information obtained from this interview will then be used to create what are known as imagery scripts which are a written account of the events discussed in the interview. The imagery scripts will be used to guide you through the memory of each event. You will also be asked to complete a brief questionnaire package comprising: Impact of Event Scale-Revised to rate the impact of your partner's life threatening illness; the Symptom Checklist-90-Revised to indicate the nature of any symptoms experienced; the BriefCOPE and Abbreviated 6-item Social Support Questionnaire to indicate your common coping strategies and satisfaction with social support respectively; The Resilience Scale ,The Life Orientation Test, Self Mastery Scale and the Life Events Checklist to measure degree of resilience, optimism, perceived control over events, and pre trauma history, and a brief demographic and illness-related questionnaire.
The second session will involve the imagery scripts being read to you while measurements including heart rate and respiration, will be recorded through the use of electrodes and similar instruments. You will be asked to briefly rate your psychological responses to the content of the imagery scripts using scales that will be provided to you. Finally, the Clinician Administered PTSD Scale (CAPS) will be administered to determine the presence of PTSD symptoms. Each session is estimated to take approximately one hour.

What do you get out of being involved?
The information obtained from this study will help us understand how people who are indirectly exposed to distressing or traumatic events respond to those events. It is hoped that by talking to individuals who develop stress response symptoms from exposure to their partner's life threatening illness that interventions to manage or prevent these negative consequences can be developed.
Participation in this project is entirely voluntary. If you agree to participate in the project by then decide to withdraw, you may do so at any time without prejudice. You may also withdraw any information you have supplied. If you wish to withdraw from the project, please advise the researcher prior to the end of December 2010. If you wish to withdraw your data please advise the researcher prior to the end of January 2011.

We will be concerned with your comfort at all times. The measurement tools do not cause discomfort although there is a minimal risk of skin rash. Some people may find that it is difficult discussing their traumatic experience as it causes anxiety. If this is the case for you, we recommend that you do not participate in this project because we will ask people to talk about their reactions to these experiences. If you agree to participate but then find it causes you undue anxiety, please let us know. We will assist you with your anxiety and provide you with the opportunity to withdraw from the study. We do not wish for participation in the project to be distressing for you. Although it is our aim to examine your responses to the specified events, we do not expect that your responses will be as intense as when you actually encountered the events. Nevertheless, some people report feeling similar emotional responses to those experienced at the time of the event although less severely. These may include numbness, fear, sadness, helplessness, or disbelief. There is now a good research base indicating that participation in research about traumatic experiences does not cause undue distress. Even if participants experience a period of temporary upset, they still report that participation in the research was a positive experience for them. However if participation causes you to temporarily have unhappy or unpleasant memories of past events please let us know so we can offer advice.

How will your personal information be treated?
We wish to emphasize that all information obtained in this study will be maintained in the strictest confidence and used for research purposes only. All written information, computer data files, and audio cassettes will be stored with a participation number code and secured in a locked cabinet. Questionnaires and audiotapes will be destroyed 5 years after the research is published. No information identifying individual participants will be used in publications arising from the research.

Concerns or complaints
This research has received approval from the Human Research Ethics Committee (Tasmania) Network (H10735). If you have any concerns of an ethical nature or complaints about the manner in which the project is conducted, you may contact the Executive Officer of the Human Research Ethics Committee (Tasmania) Network on (03) 6226 7479 or **human.ethics@utas.edu.au**.

If you are experiencing a negative psychological reaction from experiencing your partner's life threatening illness, then we would recommend that you contact the University Psychology Clinic (telephone: 6226 2805), or your general practitioner. The services provided by the University Psychology Clinic are free of charge. If you require immediate assistance, please advise us as we would be happy to provide support. If you are receiving

psychological support or counselling, you may wish to discuss participation in this project with your psychologist or counsellor prior to commencement.

If you have questions about this research you can contact the Chief Investigator, Dr Janet Haines, on (03) 6226 7124 or J.Haines@utas.edu.au

We would be happy to discuss your individual results with you. The overall results of this project will be available in hard copy or electric form on the School of Psychology website (**www.scieng.utas.edu.au/psychol/**) if you are interested. Should you decide to withdraw from the project we would welcome the opportunity to discuss your concerns about the project and your participation in it.

Please retain this information sheet and, if necessary, refer to the information it contains. In addition, if you agree to participate, you will be asked to sign a statement of informed consent. A copy of this form will be supplied for your records.

Thank you.

STATEMENT OF INFORMED CONSENT

The Traumatisation Process and Partners of Individuals with Life Threatening Illnesses

I ……have read and understood the Information Sheet for this study. The nature and possible effects of the study have been explained to me and any questions that I have asked have been answered to my satisfaction and my consent is given voluntarily.

I understand that the study involves:

- Discussing my experiences regarding my partners life threatening illness as well as an emotionally neutral event
- Recording the discussions on audiotape to facilitate the preparation of imagery scripts
- Completing a brief questionnaire package comprising: the Impact of Event Scale-Revised, Changes in Outlook Scale, and Posttraumatic Growth Scale to rate the impact of my partner's life threatening illness ; the Symptom Checklist-90-Revised to indicate the nature of my symptoms; the BriefCOPE and Abbreviated 6-item Social Support Questionnaire to indicate your common coping strategies and satisfaction with social support respectively; The Resilience Scale ,The Life Orientation Test, Self Mastery Scale and the Life Events Checklist to measure degree of resilience, optimism, perceived control over events, and pre trauma history, and a brief demographic and illness-related questionnaire.
- Attending a recording session and having electrodes and measurement instruments fitted so that recordings of my heart and respiration rates can be taken while I am being asked to imagine aspects of the events.
- Rating my psychological responses to these events using the Visual Analogue Scale.
- Undertaking the Clinician Administered PTSD Scale (CAPS) to determine the presence of PTSD symptoms.

I understand that information collected will be secured in a locked cabinet and destroyed 5 years after the research has been published.

I understand that all research data will be treated as confidential and that my name will not be attached to the data that are collected. I understand that the information obtained in the study will be used for research purposes only and no information that could identify me will be published. I agree to participate in this study and understand that I may withdraw at any time without prejudice. If I wish to withdraw, I understand that I may request that any data relating to me is withdrawn from the study.

Name of participant
……

Signature of participant …….. Date
……..

Investigator's statement

I have explained this project and the implications of participation in it to the volunteer and I believe that consent is informed and that s/he understands the implications of participation.

Name of investigator
……...

Signature of investigator ……. Date
……..

Appendix C

Recruitment Methods

Community Service Organizations:

- Contacted Rotary Club of Tasmania – requested advertisement of study and discussed opportunities for face to face contact with rotary clubs.

- Confirmation from Bill Brundle that study was advertised in rotary club newsletter which goes to all clubs statewide.

- Guest speaker @ 3 Rotary club meetings (Salamanca Rotary, Sullivans Cove, and North Hobart) about research project and handed information sheets and posters/brochures at these events.

- Contacted Carers Tasmania and discussed project and requested assistance with advertising for recruitment for the project – confirmation from Terry that project would be advertised in newsletter which is sent to all current members.

- Contacted Cancer Council of Tasmania and had meetings with Di Mason. Agreement was made to advertise project via placement of recruitment materials in their Collins St Branch and at support group meetings.

- Guest facilitator/speaker at various Cancer Council support group meetings, including :
  1. Carer's support group;
  2. gynecological cancers support group;
  3. lung cancer support group,
     and
  4. colorectal cancer support group.

- Contacted RSL and requested advertisement of the project – sent email and had phone conversation with Noeleen (Pres) RE recruitment materials. Verbal assurance these would be distributed amongst RSL clubs and opportunity to be invited to be involved in workshops to promote study. Despite various follow ups– no confirmation that this has been done to date.

- Contacted organizer of the Mothers Day Classic Fundraising Event to raise money for Breast cancer research – printed **3000** recruitment flyers and **personally filled 3000** show bags for this event with aforementioned flyers (each entrant receives a show bag as reward for their participation)

- Manned the Survivors Promotional Tent @ the Mothers Day Classic from 8am – 2pm to discuss, provide information about and promote research project – together with enabling people to sign register to express interest for participation.

- Travelled to Spring Bay with Cancer Council to conduct support meeting for cancer patients and their spouses

- Personally discussed and provided recruitment materials and received approval to promote/advertise these materials in the Hobart Cancer Council support centre

- Personally discussed and provided recruitment materials and received approval to promote/advertise these materials in the Launceston Cancer Council support centre

- Personally discussed and provided recruitment materials and received approval to promote/advertise these materials in the Burnie Cancer Council support centre

- Personally discussed and provided recruitment materials and received approval to promote/advertise these materials in the Hobart Leukemia Foundation support centre

- Personally discussed and provided recruitment materials and received approval to promote/advertise these materials in the Launceston Leukemia Foundation support centre

- Facilitated 3 x other support meetings/workshops for Cancer Council Carer's Support Group

- Recruitment materials provided to Dragons Abreast – Dragon boat racing organization comprised of breast cancer survivors and their families

- Advertised promotional/recruitment materials in local businesses – newsagent/post office; service station; local café

- Spoke with owner of beauty salon that is involved with provision of 'look good feel good' services and provided recruitment materials to promote in the salon

- Had various meetings with prior clinical supervisor Dr Christine Clifford (who works as psycho-oncologist in public and private settings) and the following recruitment methods have been utilized:

    - Dr Clifford has discussed and provided recruitment materials in 3 x workshops held @ the Leukemia Foundation
    - Dr Clifford has advertised the recruitment materials in her room in private practice
    - Dr Clifford has provided and discussed recruitment materials in workshops conducted for the Prostate Cancer Support Group
    - Dr Clifford has discussed the project with interns she has supervised in the oncology clinics @ RHH and encouraged them to discuss and provide flyers for those eligible to participate.

- Meeting with Dr Caroline Schwerkolt, Clinical and Health Psychologist, (who specializes in chronic/ life threatening illnesses) in her private practice and discussed promotion of the study. Dr Schwerkolt has displayed recruitment materials and will be discussing the project with eligible individuals accordingly.

- Spoke in person with Felicity @ Carer's Tasmania who agreed to post recruitment poster and display recruitment brochures in the Hobart Branch where carers attend to receive support, information, & assistance & attend support groups regularly.

- In contact with Carers Tasmania office via email to request the project be advertised in their next newsletter. Was advised they were unable to place it in next newsletter but will advertise in the next upcoming newsletter accordingly (August 2012).

- Recruitment posters and brochures provided to Women's Health Centre in Nth Hobart as they regularly hold patient and carer's support groups and information.

- Had meeting with Samantha – manager of John Opie House – support and accommodation service for patients and carers. Samantha has agreed to promote recruitment materials in this facility.

- Attended Cancer Council Relay for Life major fundraiser (24hr relay event held on the domain) and recruitment materials promoted in the cancer council information and support tent.

- Contacted manager of Canteen Tasmania to request promotion of the project via their office and any online methods.

- Provided recruitment materials to Canteen staff for their Battery Point office to promote project

Hospitals/Private Practices:

- Received approval to place recruitment posters/brochures in Royal Hobart Hospital – this has been done.

- Spoke with individual oncologists/urologists working in RHH &/or privately to place recruitment materials in private rooms – this has been done with many. Every consultant room in oncology dept at the royal has recruitment poster displayed and oncologists have agreed to promote study to patients and their partners.

- Oncology Clinic staff and psycho-oncology dept agreed to promote study to partners/patients

- Head Social worker of WP Holman Clinic agreed to promote study to eligible participants.

- Have negotiated space in the Liaison Psychiatry Dept of the RHH to conduct interviews with participants to increase the likelihood of potential recruitment and ease of participation.

- Travelled to St Marys Community Hospital – meeting with Nurse Unit Manager to discuss promotion of the study via displaying recruitment posters and flyers in waiting and consult rooms within the hospital

- Travelled to St Helens District Hospital and met with Nurse Unit Manager – discussion RE promotion of study via advertising recruitment for the study in the waiting and consult rooms within the hospital.

- Discussion with St Helens Nurse Unit Manager regarding permission of community health nurses to promote the study to eligible participants on their home/community visits.

- Travelled to Triabunna (Spring Bay) and received approval to display recruitment materials in waiting areas

- Travelled to Launceston General Hospital and spoke with Nurse Unit Managers RE Oncology, Specialist Clinics, Holman Clinic, and Mental to discuss and promote study and provide recruitment materials for display in these areas of the hospital

- Travelled to North East Memorial Hospital in Scottsdale – recruitment brochures now displayed in the waiting area and have requested recruitment poster to be displayed also.

- Approached Clifford Craig Trust (located in LGH) to promote recruitments materials in their waiting area and consult rooms

- Travelled to St Lukes Private Hospital (Launceston) and spoke with Nurse Unit Manager to received approval to display recruitment materials in waiting area/consult rooms.

- Travelled to private practice rooms of Mr Mike Monseur (Launceston) – Urologist – to display recruitment materials within the practice

- Travelled to Burnie and had meeting with Nurse Unit Manager of North West Regional Hospital to display recruitment materials in waiting areas and consult rooms.

- Also discussion with Burnie NW Hospital NUM to promote and advise RE this project to medical consultants so they may inform potential participants

- Approach North West Private Hospital (Burnie) to seek approval for display of recruitment materials in waiting areas and consult rooms.

- Travelled to Mersey Community Hospital and met with Nurse Unity Manager to discuss promotion of the project and display of recruitment materials in the hospital waiting and some consult rooms.

- Travelled to Burnie – Rural Clinical School a further x 3 for testing and interviewing/recruitment

- Travelled to Launceston a further x 2 to speak with specialists and community service organizations RE recruitment

- Travelled to Triabunna (Spring Bay) community health centre again for conduct cancer support workshop and follow up on recruitment opportunities with staff and promotion of project at the workshop with attendees.

- Travelled again to North East Memorial Hospital in Scottsdale for testing and met with staff to follow up on promotion of project and provided additional recruitment materials.

- Travelled again to Burnie for follow testing @ Rural Clinical School and follow ups on recruitment opportunities for the project together with provision of additional recruitment materials.

- Travelled again to St Marys for follow ups on recruitment opportunities for the project together with provision of additional recruitment materials.

- Travelled again to Launceston public and private hospitals together with community service organizations for follow up re promotion and promotional materials for project

- Travelled again to St Helens District Hospital and met with Nurse Unit Manager – follow up discussion RE promotion of study via advertising recruitment materials and from community nurses via home visitations

- Met with Oncology nursing and admin staff at the Royal Hobart Hospital Oncology Outpatients clinic to discuss final recruitment push and to follow up with health professionals regarding potential participants together with provision of additional recruitment flyers.

- Meeting conducted with community breast care nurses in Hobart who operate within public health sector and community service health initiatives

(eg McGrath Foundation) as well as their frequent interactions with the Cancer Council.

- Meeting with community health (southern) RE promotion of project.

University:

- Recruitment poster displayed in University of Tasmania – school of psychology (Hobart)
- Spoke to and Emailed Anthea @ school of psychology Launceston to display recruitment materials in L'ton school of psychology.
- Web based recruitment activated for on School of Psychology website
- Travelled to Rural Clinical School (Burnie) and requested permission to advertise recruitment posters in this facility

Media:

- Paid newspaper advertisement (approved by ethics) submitted and printed in the mercury
- Extensive consultation with Cherie @ Utas media office – media release completed
- Radio media interviews (ABC national radio news and Drive with Louise Saunders)
- Print media – interview and feature in The Mercury
- In contact with Fiona Breen via email/phone – reporter for ABC – to assist with promotion/advertising project.
- Requested TV media advertising/promotion via Community File (Win Television). Emailed similar media community service advertisements on TDTV.
- Project featured on Community File (Win Television). Numerous emails to My Community Connect on TDTV did not receive response.

Internet:

- Developed and enacted facebook page for the project and went live on facebook for promote study and provide contact details

- Used personal facebook account/page to promote links to project page and promote project/contact details

- Requests to Canteen to promote project on their website

- Requests to Carers Tasmania to promote project in online news

- Spoke to representative in Prostate Cancer support group about promoting project online and in their written newsletter.

Appendix D

Table 1a

Means, standard deviations, and 95% confidence intervals for the control dimensions of the VASs for Neutral, Diagnosis, and Treatment scripts and stages for low resilience partners (N=38)

		Low		95% CIs	
VAS - Script	Stage	*M*	*SD*	*LL*	*UL*
Clear					
Neutral	Scene	94.06	4.89	91.22	96.90
	Approach	93.69	6.68	90.83	96.54
	Incident	94.00	4.86	91.19	96.81
	Consequence	94.06	4.51	91.76	96.36
Diagnosis	Scene	87.44	13.64	82.54	92.34
	Approach	87.38	13.22	82.63	92.12
	Incident	90.56	10.21	86.28	94.84
	Consequence	91.63	10.20	87.85	95.40
Treatment	Scene	88.50	10.72	83.39	93.61
	Approach	82.94	21.57	74.96	90.91
	Incident	89.50	10.97	85.09	93.91
	Consequence	91.56	9.09	87.77	95.36
Close					
Neutral	Scene	90.88	12.53	86.48	95.27
	Approach	92.31	8.46	88.87	95.75
	Incident	93.00	8.23	89.74	96.26
	Consequence	93.19	7.45	90.26	96.12
Diagnosis	Scene	86.94	13.19	82.24	91.63
	Approach	88.06	13.08	83.39	92.74
	Incident	91.13	9.62	87.30	94.95
	Consequence	91.75	9.67	88.09	95.41
Treatment	Scene	86.25	13.71	80.46	92.05
	Approach	84.25	18.74	76.94	91.56
	Incident	90.94	8.68	87.19	94.69
	Consequence	90.25	12.49	85.56	94.94

Table 1b

Means, standard deviations, and 95% confidence intervals for the control dimensions of the VASs for Neutral, Diagnosis, and Treatment scripts and stages for high resilience partners (N=38)

		High		95% CIs	
VAS - Script	Stage	*M*	*SD*	*LL*	*UL*
Clear					
Neutral	Scene	93.18	6.06	90.76	95.61
	Approach	94.05	4.74	91.61	96.48
	Incident	93.50	5.99	91.10	95.90
	Consequence	94.41	4.55	92.45	96.37
Diagnosis	Scene	91.95	5.21	87.78	96.13
	Approach	93.36	5.01	89.32	97.41
	Incident	92.59	6.91	88.94	96.24
	Consequence	93.50	4.55	90.28	96.72
Treatment	Scene	89.09	9.59	84.74	93.45
	Approach	90.45	9.58	83.65	97.26
	Incident	93.50	6.63	89.74	97.26
	Consequence	93.73	6.08	90.49	96.96
Close					
Neutral	Scene	94.18	4.08	90.44	97.93
	Approach	93.68	5.28	90.75	96.62
	Incident	94.09	4.75	91.31	96.87
	Consequence	94.41	4.18	91.91	96.91
Diagnosis	Scene	92.27	4.78	88.27	96.28
	Approach	93.68	4.86	89.69	97.67
	Incident	92.77	5.63	89.51	63.04
	Consequence	93.23	4.77	90.10	96.35
Treatment	Scene	89.09	9.47	84.15	94.03
	Approach	90.45	10.27	83.18	95.64
	Incident	93.50	6.33	89.66	96.06
	Consequence	93.73	5.91	89.28	97.27

Table 2a

Means, standard deviations, and 95% confidence intervals for the control dimensions of the VASs for low resilience partners (n = 17)

		Low		95% CIs	
VAS-Script	Stage	*M*	*SD*	*LL*	*UL*
Clear					
Neutral	Scene	94.60	3.53	92.09	97.11
	Approach	93.80	6.84	89.64	97.96
	Incident	94.10	4.07	90.94	97.26
	Consequence	94.10	3.93	91.07	97.13
Diagnosis	Scene	86.00	14.51	78.02	93.98
	Approach	86.30	13.28	79.28	93.33
	Incident	89.40	10.07	83.97	94.83
	Consequence	91.60	9.88	86.28	96.92
Treatment	Scene	87.90	11.58	81.28	94.52
	Approach	82.10	21.92	70.53	93.67
	Incident	89.00	11.48	82.84	95.16
	Consequence	91.70	6.00	88.38	95.02
Fear of Recurrence	Scene	89.40	12.47	81.39	97.41
	Approach	83.60	17.15	74.41	92.79
	Incident	89.50	13.12	82.11	96.89
	Consequence	89.60	12.55	82.75	96.45
Close					
Neutral	Scene	89.60	15.08	81.55	97.66
	Approach	91.80	9.47	86.38	97.22
	Incident	92.20	9.45	86.68	97.72
	Consequence	92.60	8.50	87.53	97.67
Diagnosis	Scene	84.40	14.04	76.66	92.14
	Approach	87.00	12.88	80.18	93.82
	Incident	90.20	9.39	84.68	95.72
	Consequence	91.30	9.78	85.99	96.61
Treatment	Scene	84.20	15.42	75.98	92.42
	Approach	82.30	21.93	70.72	93.88
	Incident	90.50	8.28	85.91	95.09
	Consequence	89.00	14.38	81.39	96.61
Fear of Recurrence	Scene	88.70	10.59	82.47	94.93
	Approach	87.10	13.16	79.95	94.25
	Incident	87.00	14.68	78.91	95.09
	Consequence	85.70	15.63	77.33	94.07

Table 2b

Means, standard deviations, and confidence intervals for the control dimensions of the VASs for high resilience partners (n = 17)

		High		95% CIs	
VAS-Script	Stage	*M*	*SD*	*LL*	*UL*
Clear					
Neutral	Scene	93.43	93.43	90.43	96.43
	Approach	93.57	93.57	88.60	98.54
	Incident	93.43	93.43	89.65	97.21
	Consequence	93.14	93.14	89.52	96.77
Diagnosis	Scene	92.29	92.29	82.75	101.82
	Approach	94.29	94.29	85.89	102.68
	Incident	93.43	93.43	86.94	99.92
	Consequence	93.71	93.71	87.35	100.08
Treatment	Scene	90.43	90.43	82.51	98.35
	Approach	94.00	94.00	80.16	107.83
	Incident	93.71	93.71	86.35	101.08
	Consequence	94.71	94.71	90.75	98.68
Fear of Recurrence	Scene	85.43	85.43	75.85	95.01
	Approach	91.71	91.71	80.73	102.70
	Incident	91.43	91.43	82.59	100.26
	Consequence	92.57	92.57	84.39	100.76
Close					
Neutral	Scene	93.00	93.00	83.37	102.63
	Approach	93.14	93.14	86.67	99.62
	Incident	92.43	92.43	85.83	99.02
	Consequence	92.43	92.43	86.36	98.49
Diagnosis	Scene	91.57	91.57	82.32	100.83
	Approach	94.29	94.29	86.14	102.44
	Incident	91.00	91.00	84.40	97.60
	Consequence	93.43	93.43	87.09	99.77
Treatment	Scene	92.57	92.57	82.75	102.39
	Approach	93.43	93.43	79.59	107.27
	Incident	93.57	93.57	88.08	99.06
	Consequence	94.71	94.71	85.62	103.81
Fear of Recurrence	Scene	89.57	89.57	82.13	97.01
	Approach	91.86	91.86	83.31	100.40
	Incident	91.43	91.43	81.76	101.10
	Consequence	93.14	93.14	83.14	103.15

Appendix E

Table 3a

Means, standard deviations, and 95% confidence intervals for finger blood volume for Neutral, Diagnosis, and Treatment scripts and stages for low resilience partners (N=38)

		Low		95% CIs	
Script	Stage	*M*	*SD*	*LL*	*UL*
Neutral	Scene	8.42	.13	8.37	8.48
	Approach	8.45	.27	8.36	8.55
	Incident	8.40	.08	8.35	8.46
	Consequence	8.38	.09	8.32	8.44
Diagnosis	Scene	8.40	.10	8.29	8.51
	Approach	8.39	.18	8.31	8.46
	Incident	8.37	.17	8.30	8.44
	Consequence	8.40	.20	8.30	8.50
Treatment	Scene	8.44	.18	8.38	8.51
	Approach	8.44	.16	8.37	8.51
	Incident	8.40	.10	8.32	8.48
	Consequence	8.40	.09	8.34	8.45

Table 3b

Means, standard deviations, and 95% confidence intervals for finger blood volume for Neutral, Diagnosis, and Treatment scripts and stages for high resilience partners (N=38)

		High		95% CIs	
Script	Stage	*M*	*SD*	*LL*	*UL*
Neutral	Scene	8.44	.08	8.39	8.49
	Approach	8.42	.10	8.34	8.50
	Incident	8.39	.13	8.34	8.43
	Consequence	8.45	.13	8.40	8.50
Diagnosis	Scene	8.37	.28	8.27	8.47
	Approach	8.39	.12	8.33	8.45
	Incident	8.42	.10	8.36	8.48
	Consequence	8.43	.19	8.34	8.51
Treatment	Scene	8.43	.07	8.38	8.49
	Approach	8.42	.12	8.36	8.48
	Incident	8.37	.19	8.30	8.44
	Consequence	8.42	.11	8.38	8.46

Table 4a

Means, standard deviations, and 95% confidence intervals for respiration rate for Neutral, Diagnosis, and Treatment scripts and stages for low resilience partners (N=38)

		Low		95% CIs	
Script	Stage	*M*	*SD*	*LL*	*UL*
Neutral	Scene	14.22	3.53	12.41	16.02
	Approach	14.97	3.70	13.29	16.65
	Incident	14.63	4.13	12.76	16.49
	Consequence	14.56	4.10	12.85	16.27
Diagnosis	Scene	15.00	3.45	13.49	16.51
	Approach	14.88	3.92	13.03	16.72
	Incident	15.13	3.73	13.44	16.82
	Consequence	15.19	4.07	13.30	17.08
Treatment	Scene	15.22	4.06	13.48	16.96
	Approach	15.39	2.92	12.86	16.39
	Incident	14.63	3.58	13.26	17.18
	Consequence	15.22	3.78	13.37	16.63

Table 4b

Means, standard deviations, and 95% confidence intervals for respiration rate for Neutral, Diagnosis, and Treatment scripts and stages for high resilience partners (N=38)

		High		95% CIs	
Script	Stage	*M*	*SD*	*LL*	*UL*
Neutral	Scene	15.39	3.59	13.85	16.93
	Approach	15.77	3.01	14.34	17.21
	Incident	15.82	3.32	14.23	17.41
	Consequence	16.27	2.75	14.81	17.73
Diagnosis	Scene	15.75	2.61	14.46	17.04
	Approach	15.66	3.44	14.08	17.24
	Incident	15.50	3.02	14.06	16.94
	Consequence	15.77	3.47	14.16	17.39
Treatment	Scene	15.39	2.92	13.90	16.87
	Approach	15.57	3.41	14.06	17.07
	Incident	16.55	3.91	14.88	18.21
	Consequence	15.84	3.15	14.45	17.23

Table 5a

Means, standard deviations, and 95% confidence intervals for heart rate for Neutral, Diagnosis, and Treatment scripts and stages for low resilience partners (N=38)

		Low		95% CIs	
Script	Stage	*M*	*SD*	*LL*	*UL*
Neutral	Scene	65.18	9.05	59.25	71.10
	Approach	65.54	9.07	59.61	71.48
	Incident	65.75	9.48	59.71	71.78
	Consequence	66.41	9.66	60.35	72.46
Diagnosis	Scene	68.00	10.30	61.74	74.26
	Approach	68.35	10.57	61.81	74.90
	Incident	68.18	10.22	61.75	74.60
	Consequence	67.91	9.86	61.56	74.26
Treatment	Scene	68.50	10.27	62.64	74.36
	Approach	67.93	10.03	61.93	73.93
	Incident	68.41	11.60	62.13	74.68
	Consequence	68.77	11.35	62.78	75.06

Table 5b

Means, standard deviations, and 95% confidence intervals for heart rate for Neutral, Diagnosis, and Treatment scripts and stages for high resilience partners (N=38)

		High		95% CIs	
Script	Stage	*M*	*SD*	*LL*	*UL*
Neutral	Scene	67.85	13.26	62.79	72.90
	Approach	67.80	13.27	62.74	72.86
	Incident	68.30	13.37	63.15	73.44
	Consequence	68.92	13.33	63.76	74.08
Diagnosis	Scene	69.63	13.62	64.30	74.97
	Approach	71.11	14.35	65.53	76.69
	Incident	71.88	14.17	66.40	77.36
	Consequence	70.88	14.12	65.47	76.30
Treatment	Scene	70.28	12.40	65.29	72.58
	Approach	70.50	12.97	65.38	75.61
	Incident	71.54	12.90	66.19	76.89
	Consequence	71.15	13.10	65.79	76.51

Appendix F

Table 6a

Means, standard deviations, and 95% confidence intervals for psychological responses for Neutral, Diagnosis, and Treatment scripts and stages for low resilience partners (N=38)

		Low		95% CIs	
VAS - Script	Stage	*M*	*SD*	*LL*	*UL*
Anger					
Neutral	Scene	14.00	15.00	8.40	19.60
	Approach	12.75	14.82	7.10	18.41
	Incident	9.56	10.08	5.41	13.72
	Consequence	8.06	6.64	4.41	11.72
Diagnosis	Scene	13.31	12.08	4.23	22.40
	Approach	25.69	25.81	11.69	39.68
	Incident	39.56	31.66	24.27	54.85
	Consequence	34.75	32.38	18.44	51.06
Treatment	Scene	16.00	16.37	5.93	26.07
	Approach	21.19	20.78	8.66	33.72
	Incident	27.31	28.03	12.04	42.58
	Consequence	25.81	27.12	11.14	40.49
Anxiety					
Neutral	Scene	15.94	19.80	8.23	23.65
	Approach	15.38	19.78	8.10	22.65
	Incident	12.94	15.30	7.27	18.61
	Consequence	11.44	13.40	6.09	16.78
Diagnosis	Scene	42.88	32.88	27.13	58.62
	Approach	53.69	31.68	39.29	68.09
	Incident	72.69	26.50	60.03	85.35
	Consequence	71.81	30.87	58.16	85.47
Treatment	Scene	41.44	33.63	25.37	57.51
	Approach	50.63	32.57	35.06	66.19
	Incident	64.75	32.93	49.33	80.17
	Consequence	52.94	32.97	36.74	69.14

(Table continues)

Table 6a continued

VAS - Script	Stage	Low		95% CIs	
		M	*SD*	*LL*	*UL*
Calm					
Neutral	Scene	85.00	24.31	76.63	93.37
	Approach	90.13	12.25	85.55	94.70
	Incident	89.56	14.72	84.31	94.82
	Consequence	91.88	9.36	88.28	95.47
Diagnosis	Scene	64.50	28.29	49.36	79.64
	Approach	50.50	20.18	37.28	63.72
	Incident	34.19	26.78	19.62	48.75
	Consequence	36.06	32.17	19.62	52.51
Treatment	Scene	63.13	28.59	48.02	78.23
	Approach	58.88	26.52	44.15	73.60
	Incident	45.44	32.50	30.14	60.74
	Consequence	61.00	31.93	45.32	76.68
Fearful					
Neutral	Scene	16.25	19.76	9.04	23.46
	Approach	13.25	17.85	6.76	19.75
	Incident	12.88	18.13	6.36	19.39
	Consequence	10.31	13.68	4.83	15.80
Diagnosis	Scene	38.06	30.68	22.94	53.19
	Approach	49.31	32.78	32.74	65.89
	Incident	73.19	28.92	59.24	87.14
	Consequence	68.38	34.96	53.41	83.34
Treatment	Scene	41.81	36.94	24.58	59.05
	Approach	39.69	33.13	23.65	55.73
	Incident	59.69	36.28	42.70	76.67
	Consequence	50.69	36.45	32.98	68.40

(Table continues)

Table 6a continued

VAS - Script	Stage	Low		95% CIs	
		M	*SD*	*LL*	*UL*
Frustrated					
Neutral	Scene	15.81	17.97	8.90	22.73
	Approach	13.69	16.33	7.65	19.73
	Incident	13.44	17.05	7.18	19.69
	Consequence	11.88	13.37	6.54	17.21
Diagnosis	Scene	26.19	22.75	13.66	38.72
	Approach	39.38	24.87	24.54	54.22
	Incident	44.63	29.90	29.07	60.18
	Consequence	54.81	37.34	37.35	72.28
Treatment	Scene	32.38	33.54	17.67	47.08
	Approach	36.19	30.18	20.81	51.56
	Incident	46.06	34.34	28.83	63.29
	Consequence	43.75	37.65	25.88	61.62
Helpless					
Neutral	Scene	11.50	10.37	7.37	15.63
	Approach	10.19	10.87	5.91	14.47
	Incident	8.63	8.48	4.98	12.27
	Consequence	12.75	22.25	4.98	20.52
Diagnosis	Scene	34.88	29.89	19.60	50.15
	Approach	46.63	26.17	32.09	61.17
	Incident	65.13	28.94	50.34	79.91
	Consequence	67.56	29.78	52.77	82.35
Treatment	Scene	39.63	29.19	24.52	54.73
	Approach	46.13	30.01	30.41	61.84
	Incident	54.50	34.39	38.61	70.39
	Consequence	49.63	31.89	32.95	66.30

(Table continues)

Table 6a continued

VAS - Script	Stage	Low		95% CIs	
		M	*SD*	*LL*	*UL*
PDI					
Neutral	Scene	12.88	16.10	3.78	21.97
	Approach	12.94	16.05	4.07	21.81
	Incident	13.31	16.02	4.56	22.06
	Consequence	11.25	14.75	2.48	20.02
Diagnosis	Scene	23.06	22.04	11.34	34.79
	Approach	26.75	26.99	12.74	40.76
	Incident	54.56	36.36	36.41	72.72
	Consequence	57.56	37.90	39.55	75.58
Treatment	Scene	39.56	34.76	24.67	54.46
	Approach	41.38	33.83	25.57	57.19
	Incident	54.44	34.19	36.83	72.04
	Consequence	47.88	37.35	29.72	66.03
Sad					
Neutral	Scene	10.44	14.39	3.89	16.99
	Approach	10.63	13.37	4.87	16.38
	Incident	9.63	12.41	2.98	16.27
	Consequence	6.25	6.43	.02	12.48
Diagnosis	Scene	51.63	34.54	35.63	67.63
	Approach	41.69	30.70	25.29	58.09
	Incident	65.75	33.70	48.82	82.69
	Consequence	66.75	31.52	51.39	82.11
Treatment	Scene	31.50	31.01	16.09	46.91
	Approach	36.94	34.02	20.78	53.10
	Incident	52.31	34.26	35.86	68.76
	Consequence	49.25	33.28	32.09	66.41

(Table continues)

Table 6a continued

VAS - Script	Stage	Low		95% CIs	
		M	*SD*	*LL*	*UL*
Shocked					
Neutral	Scene	10.44	12.48	5.58	15.30
	Approach	8.19	7.93	4.40	11.98
	Incident	10.00	9.19	5.93	14.07
	Consequence	7.44	6.54	3.90	10.97
Diagnosis	Scene	30.00	25.03	17.57	42.43
	Approach	31.69	24.90	17.23	46.14
	Incident	64.19	35.03	47.45	80.92
	Consequence	62.81	37.67	44.44	81.19
Treatment	Scene	26.44	25.97	13.24	39.64
	Approach	33.00	27.06	18.94	47.06
	Incident	53.13	36.59	35.50	70.75
	Consequence	44.50	33.56	28.35	60.65
Tense					
Neutral	Scene	12.38	15.05	7.01	17.74
	Approach	11.44	13.86	6.22	16.66
	Incident	11.88	14.00	6.63	17.12
	Consequence	9.75	13.01	4.71	14.79
Diagnosis	Scene	48.38	33.64	31.72	65.03
	Approach	49.31	31.11	33.77	64.85
	Incident	70.63	30.00	57.51	83.74
	Consequence	69.81	32.34	55.66	83.97
Treatment	Scene	44.19	34.19	27.58	60.80
	Approach	43.25	31.68	28.29	58.21
	Incident	57.56	35.83	40.31	74.81
	Consequence	54.63	34.16	38.34	70.91

Table 6b

Means, standard deviations, and 95% confidence intervals for psychological responses for Neutral, Diagnosis, and Treatment scripts and stages for high resilience partners (N=38)

		High		95% CIs	
VAS - Script	Stage	*M*	*SD*	*LL*	*UL*
Anger					
Neutral	Scene	9.09	6.98	4.31	13.87
	Approach	10.00	7.509	5.18	14.82
	Incident	8.64	6.54	5.09	12.18
	Consequence	8.68	7.58	5.57	12.80
Diagnosis	Scene	22.45	21.12	14.71	30.20
	Approach	29.86	28.81	17.93	41.80
	Incident	35.82	29.04	22.78	48.86
	Consequence	36.50	32.03	22.59	50.41
Treatment	Scene	22.86	22.01	14.28	31.45
	Approach	29.14	27.18	18.45	39.82
	Incident	33.41	31.52	20.39	46.43
	Consequence	34.55	30.19	22.0	47.06
Anxiety					
Neutral	Scene	12.55	10.80	5.97	19.12
	Approach	10.32	8.58	4.11	16.52
	Incident	8.95	6.88	4.12	13.79
	Consequence	9.23	7.89	4.67	13.78
Diagnosis	Scene	58.82	29.68	45.39	72.24
	Approach	72.14	25.81	59.86	84.42
	Incident	81.05	23.81	70.25	91.84
	Consequence	74.14	23.72	62.49	85.78
Treatment	Scene	56.36	30.24	42.66	70.07
	Approach	61.91	29.30	48.63	75.19
	Incident	71.18	28.48	58.03	84.33
	Consequence	66.41	31.19	52.60	80.22

(Table continues)

Table 6b continued

VAS - Script	Stage	High		95% CIs	
		M	*SD*	*LL*	*UL*
Calm					
Neutral	Scene	91.45	6.72	84.32	98.59
	Approach	93.00	5.71	89.10	96.90
	Incident	93.36	5.41	88.88	97.85
	Consequence	93.55	4.86	90.48	96.61
Diagnosis	Scene	57.91	30.94	45.10	70.82
	Approach	42.91	29.56	31.64	54.18
	Incident	38.09	30.03	25.67	50.51
	Consequence	39.91	32.62	25.89	53.92
Treatment	Scene	54.86	30.61	41.99	67.74
	Approach	49.27	30.72	36.72	61.83
	Incident	43.55	28.40	30.50	56.59
	Consequence	48.05	30.20	34.67	61.42
Fearful					
Neutral	Scene	9.64	8.23	3.49	15.79
	Approach	9.05	7.34	3.51	14.59
	Incident	7.95	6.93	2.40	13.51
	Consequence	8.41	8.19	3.73	13.09
Diagnosis	Scene	53.00	29.21	40.10	65.90
	Approach	62.36	32.63	48.23	76.50
	Incident	77.18	26.48	65.28	89.08
	Consequence	75.05	24.92	62.28	87.81
Treatment	Scene	48.23	31.72	33.53	62.93
	Approach	55.50	30.51	41.82	69.18
	Incident	65.00	31.36	50.52	79.48
	Consequence	59.05	33.80	43.94	74.15

(Table continues)

Table 6b continued

VAS - Script	Stage	High		95% CIs	
		M	*SD*	*LL*	*UL*
Frustrated					
Neutral	Scene	11.64	9.38	5.74	17.53
	Approach	11.45	7.28	6.30	16.61
	Incident	9.05	7.31	3.71	14.38
	Consequence	9.55	7.87	5.00	14.09
Diagnosis	Scene	38.55	26.02	27.86	49.23
	Approach	45.95	32.04	33.30	58.61
	Incident	53.86	31.22	40.60	67.13
	Consequence	58.59	32.22	43.70	73.48
Treatment	Scene	35.23	25.25	22.69	47.77
	Approach	36.55	30.42	23.44	49.66
	Incident	50.77	33.72	36.08	65.47
	Consequence	49.70	33.42	34.47	64.94
Helpless					
Neutral	Scene	8.00	6.06	4.48	11.52
	Approach	8.18	6.15	4.53	11.83
	Incident	7.00	6.09	3.89	10.11
	Consequence	6.73	7.01	.10	13.35
Diagnosis	Scene	38.45	30.31	25.42	51.49
	Approach	46.55	30.34	34.15	58.95
	Incident	58.05	29.32	45.44	70.66
	Consequence	60.09	28.73	47.48	72.70
Treatment	Scene	45.32	30.21	32.44	58.20
	Approach	50.95	31.68	37.55	64.36
	Incident	56.82	28.96	43.27	70.37
	Consequence	50.32	33.86	36.09	65.54

(Table continues)

Table 6b continued

VAS - Script	Stage	High		95% CIs	
		M	*SD*	*LL*	*UL*
PDI					
Neutral	Scene	13.41	19.16	5.65	21.17
	Approach	12.45	18.45	4.89	20.02
	Incident	13.00	18.09	5.54	20.46
	Consequence	12.27	18.90	4.80	19.75
Diagnosis	Scene	22.77	23.87	12.77	32.77
	Approach	30.32	28.08	18.37	42.27
	Incident	46.27	35.42	30.79	61.76
	Consequence	46.36	33.75	31.00	61.73
Treatment	Scene	25.73	24.83	13.03	38.43
	Approach	30.05	29.15	16.56	43.53
	Incident	34.59	35.10	19.58	49.61
	Consequence	31.18	34.67	15.70	46.67
Sad					
Neutral	Scene	10.64	11.75	5.05	16.22
	Approach	9.32	9.66	4.41	14.23
	Incident	9.32	13.58	3.65	14.99
	Consequence	11.05	15.13	5.74	16.36
Diagnosis	Scene	32.00	29.24	18.36	45.64
	Approach	45.86	33.47	31.88	59.85
	Incident	64.00	33.19	49.56	78.44
	Consequence	71.45	29.39	58.36	84.55
Treatment	Scene	47.73	29.93	34.59	60.87
	Approach	51.23	30.24	37.45	65.01
	Incident	59.73	31.08	45.70	73.76
	Consequence	56.73	34.23	42.10	71.36

(Table continues)

Table 6b continued

VAS - Script	Stage	High		95% CIs	
		M	*SD*	*LL*	*UL*
Shocked					
Neutral	Scene	9.09	6.79	4.95	13.23
	Approach	8.91	7.14	5.68	12.14
	Incident	8.36	7.08	4.89	11.84
	Consequence	7.68	7.26	4.67	10.70
Diagnosis	Scene	22.59	24.15	11.99	33.19
	Approach	39.27	30.82	26.95	51.60
	Incident	67.77	31.49	53.50	82.04
	Consequence	62.41	35.19	46.74	78.08
Treatment	Scene	32.09	26.08	20.83	43.35
	Approach	41.09	28.19	29.10	53.08
	Incident	52.73	33.41	37.69	67.76
	Consequence	46.73	30.57	32.96	60.50
Tense					
Neutral	Scene	7.41	5.51	2.83	11.99
	Approach	8.45	8.68	4.00	12.91
	Incident	7.95	6.60	3.48	12.43
	Consequence	8.23	6.96	3.93	12.52
Diagnosis	Scene	50.95	32.28	36.75	65.16
	Approach	64.18	30.32	50.93	77.44
	Incident	77.82	22.44	66.64	89.00
	Consequence	73.95	24.28	61.88	86.03
Treatment	Scene	49.05	31.70	34.88	63.21
	Approach	55.32	27.85	42.56	68.08
	Incident	64.95	32.67	50.24	79.67
	Consequence	60.82	30.57	46.93	74.71

Appendix G

Table 7a

Means, standard deviations, and 95% confidence intervals for finger blood volume for Neutral, Diagnosis, and Treatment scripts and stages for low resilience partners (n=17)

		Low		95% CIs	
Script	Stage	*M*	*SD*	*LL*	*UL*
Neutral	Scene	8.39	.14	8.31	8.46
	Approach	8.38	.16	8.29	8.47
	Incident	8.40	.09	8.35	8.45
	Consequence	8.36	.11	8.30	8.42
Diagnosis	Scene	8.40	.12	8.33	8.48
	Approach	8.37	.21	8.25	8.49
	Incident	8.36	.21	8.25	8.47
	Consequence	8.38	.26	8.22	8.52
Treatment	Scene	8.49	.21	8.38	8.60
	Approach	8.47	.18	8.37	8.57
	Incident	8.42	.09	8.36	8.49
	Consequence	8.42	.10	8.35	8.48
Fear of Recurrence	Scene	8.36	.11	8.30	8.42
	Approach	8.43	.13	8.36	8.50
	Incident	8.38	.12	8.30	8.45
	Consequence	8.33	.21	8.14	8.52

Table 7b

Means, standard deviations, and 95% confidence intervals for finger blood volume for Neutral, Diagnosis, and Treatment scripts and stages for high resilience partners (n=17)

		High		95% CIs	
Script	Stage	*M*	*SD*	*LL*	*UL*
Neutral	Scene	8.42	.05	8.33	8.51
	Approach	8.42	.10	8.30	8.52
	Incident	8.44	.05	8.38	8.50
	Consequence	8.46	.05	8.39	8.53
Diagnosis	Scene	8.48	.08	8.40	8.57
	Approach	8.44	.09	8.30	8.58
	Incident	8.44	.03	8.31	8.57
	Consequence	8.47	.14	8.30	8.65
Treatment	Scene	8.44	.07	8.30	8.57
	Approach	8.44	.09	8.31	8.56
	Incident	8.37	.11	8.29	8.45
	Consequence	8.42	.08	8.35	8.50
Fear of Recurrence	Scene	8.43	.04	8.35	8.50
	Approach	8.41	.06	8.32	8.50
	Incident	8.43	.07	8.35	8.52
	Consequence	8.59	.35	8.37	8.81

Table 8a

Means, standard deviations, and 95% confidence intervals for respiration rate for Neutral, Diagnosis, and Treatment scripts and stages for low resilience partners (n=17)

		Low		95% CIs	
Script	Stage	*M*	*SD*	*LL*	*UL*
Neutral	Scene	13.15	2.94	10.60	15.70
	Approach	13.45	3.27	11.24	15.66
	Incident	12.90	3.34	10.50	15.30
	Consequence	13.20	3.40	10.87	15.53
Diagnosis	Scene	13.70	3.27	11.65	15.75
	Approach	13.00	3.10	10.75	15.26
	Incident	13.60	3.39	11.58	15.63
	Consequence	13.15	2.97	11.15	15.15
Treatment	Scene	13.15	2.79	11.20	15.10
	Approach	12.70	2.95	10.49	14.91
	Incident	13.95	3.59	11.42	16.49
	Consequence	13.90	3.24	11.53	16.27
Fear of Recurrence	Scene	13.70	3.85	11.30	16.10
	Approach	14.80	3.58	12.52	17.08
	Incident	12.85	3.51	10.34	15.36
	Consequence	13.85	3.62	11.36	16.34

Table 8b

Means, standard deviations, and 95% confidence intervals for respiration rate for Neutral, Diagnosis, and Treatment scripts and stages for high resilience partners (n=17)

		High		95% CIs	
Script	Stage	*M*	*SD*	*LL*	*UL*
Neutral	Scene	15.50	4.77	12.45	18.55
	Approach	15.71	3.30	13.07	18.36
	Incident	14.64	3.88	11.77	17.52
	Consequence	15.43	3.55	12.64	18.21
Diagnosis	Scene	16.21	2.68	13.76	18.67
	Approach	15.64	3.69	12.95	18.34
	Incident	15.79	2.31	13.37	18.21
	Consequence	15.21	2.97	12.82	17.61
Treatment	Scene	15.50	3.04	13.17	17.83
	Approach	15.29	3.73	12.64	17.93
	Incident	16.00	4.00	12.97	19.03
	Consequence	15.36	3.90	12.52	18.19
Fear of Recurrence	Scene	16.14	3.08	13.27	19.01
	Approach	16.64	3.07	13.92	19.37
	Incident	16.86	4.02	13.86	19.86
	Consequence	16.64	3.82	13.66	19.62

Table 9a

Means, standard deviations, and 95% confidence intervals for heart rate for each script and stage for low resilience partners (n=17)

		Low		95% CIs	
Script	Stage	*M*	*SD*	*LL*	*UL*
Neutral	Scene	66.49	8.81	59.44	73.53
	Approach	67.02	8.60	59.98	74.07
	Incident	66.79	8.91	59.81	73.78
	Consequence	67.68	8.66	60.43	74.92
Diagnosis	Scene	70.15	8.35	63.18	77.13
	Approach	70.57	8.71	63.65	77.49
	Incident	70.61	7.74	63.71	77.52
	Consequence	69.36	7.55	62.69	76.04
Treatment	Scene	69.16	9.10	61.97	76.34
	Approach	68.74	8.69	61.31	76.17
	Incident	68.28	8.89	61.15	75.42
	Consequence	69.06	7.88	61.22	76.89
Fear of Recurrence	Scene	68.83	9.70	61.33	76.33
	Approach	68.54	8.85	61.07	76.01
	Incident	69.31	9.60	61.87	76.75
	Consequence	69.62	8.94	62.15	77.10

Table 9b

Means, standard deviations, and 95% confidence intervals for heart rate for each script and stage for high resilience partners (n=17)

		High		95%CIs	
Script	Stage	*M*	*SD*	*LL*	*UL*
Neutral	Scene	75.91	12.51	67.49	84.33
	Approach	76.43	12.73	68.01	84.85
	Incident	77.19	12.22	68.84	85.54
	Consequence	78.11	13.27	69.45	86.76
Diagnosis	Scene	80.01	12.77	71.68	88.34
	Approach	80.95	12.22	72.68	89.21
	Incident	81.32	13.14	73.06	89.57
	Consequence	81.81	12.64	73.84	89.79
Treatment	Scene	79.82	12.64	71.24	88.41
	Approach	81.07	13.80	72.19	89.96
	Incident	81.64	12.71	73.12	90.17
	Consequence	81.64	15.64	72.27	91.00
Fear of Recurrence	Scene	78.46	12.98	69.50	87.43
	Approach	79.39	13.77	70.47	88.32
	Incident	78.81	12.91	69.92	87.71
	Consequence	81.10	13.70	72.16	90.03

Appendix H

Table 10a

Means, standard deviations, and 95% confidence intervals for the psychological responses to each script at each stage for low resilience partners (n=17)

		Low		95% CIs	
VAS-Script	Stage	*M*	*SD*	*LL*	*UL*
Anger					
Neutral	Scene	11.86	8.34	5.00	25.60
	Approach	14.40	18.16	4.33	24.47
	Incident	8.90	10.94	2.17	15.63
	Consequence	5.90	3.73	1.64	10.16
Diagnosis	Scene	11.70	12.84	-2.57	25.97
	Approach	18.00	20.42	-1.38	37.38
	Incident	25.70	27.50	4.90	46.50
	Consequence	18.60	23.97	-.93	38.13
Treatment	Scene	14.50	17.87	.36	28.65
	Approach	16.60	21.06	-2.52	35.72
	Incident	16.40	22.30	-4.30	37.10
	Consequence	14.40	18.23	-2.81	31.61
Fear of Recurrence	Scene	21.70	32.65	2.92	40.48
	Approach	17.00	20.49	3.34	30.66
	Incident	11.90	13.23	-1.73	25.53
	Consequence	11.70	11.88	-.98	24.38
Anxiety					
Neutral	Scene	18.10	24.63	4.40	31.80
	Approach	17.70	24.83	3.92	41.48
	Incident	14.40	18.27	4.21	24.59
	Consequence	11.40	15.80	2.29	20.51
Diagnosis	Scene	52.00	35.24	28.13	75.87
	Approach	58.30	33.54	39.82	76.79
	Incident	73.40	24.82	60.33	86.47
	Consequence	70.40	30.22	54.29	86.51
Treatment	Scene	41.70	31.81	20.50	62.90
	Approach	44.60	34.32	21.66	67.54
	Incident	58.50	34.25	37.90	79.10
	Consequence	39.20	26.78	21.84	56.56
Fear of Recurrence	Scene	28.20	33.18	5.82	50.59
	Approach	37.60	26.68	18.53	56.67
	Incident	47.00	34.37	27.32	66.68
	Consequence	45.30	32.87	26.39	64.21

(Table continues)

Table 10a continued

VAS-Script	Stage	Low		95% CIs	
		M	*SD*	*LL*	*UL*
Calm					
Neutral	Scene	79.80	29.62	64.08	95.52
	Approach	88.30	15.15	79.71	96.89
	Incident	87.00	17.83	77.17	96.83
	Consequence	91.00	11.17	84.60	97.40
Diagnosis	Scene	57.30	29.83	34.66	79.94
	Approach	48.20	23.35	29.89	66.42
	Incident	30.20	26.60	13.85	46.55
	Consequence	37.90	34.73	17.44	58.36
Treatment	Scene	61.90	30.80	42.01	81.79
	Approach	58.00	30.16	39.84	76.16
	Incident	51.70	32.05	32.31	71.09
	Consequence	68.20	28.52	50.57	85.83
Fear of Recurrence	Scene	65.70	31.68	45.01	86.39
	Approach	63.50	28.58	43.59	83.41
	Incident	58.90	28.57	40.08	77.72
	Consequence	58.30	35.22	36.40	80.20
Fearful					
Neutral	Scene	18.10	24.49	4.72	31.49
	Approach	15.20	22.31	3.01	27.39
	Incident	14.80	22.10	2.67	26.93
	Consequence	10.00	16.10	.73	19.27
Diagnosis	Scene	48.10	33.76	26.15	70.05
	Approach	55.20	34.24	34.17	76.23
	Incident	75.20	29.25	59.80	90.60
	Consequence	66.20	37.17	45.79	86.43
Treatment	Scene	41.70	36.71	17.55	65.86
	Approach	35.40	35.44	12.33	58.48
	Incident	50.00	36.60	27.08	72.92
	Consequence	35.50	31.34	13.53	57.47
Fear of Recurrence	Scene	30.70	34.74	9.76	51.64
	Approach	30.60	25.63	12.63	48.57
	Incident	45.60	37.25	24.64	66.56
	Consequence	40.20	34.72	20.07	60.33

(Table continues)

Table 10a continued

VAS-Script	Stage	Low		95% CIs	
		M	*SD*	*LL*	*UL*
Frustrated					
Neutral	Scene	17.30	22.18	4.75	29.85
	Approach	15.50	20.26	4.49	26.51
	Incident	15.20	20.60	3.77	26.63
	Consequence	12.00	15.73	2.87	21.13
Diagnosis	Scene	26.80	25.53	9.70	43.90
	Approach	40.60	28.65	18.99	62.22
	Incident	40.90	32.48	21.74	60.06
	Consequence	45.90	38.06	24.23	67.58
Treatment	Scene	34.10	35.31	13.62	54.58
	Approach	36.40	35.97	12.10	60.70
	Incident	34.50	32.37	11.54	57.46
	Consequence	28.30	33.19	5.61	50.99
Fear of Recurrence	Scene	29.60	34.19	5.98	53.22
	Approach	33.20	27.70	47.75	51.66
	Incident	30.10	28.53	8.67	51.53
	Consequence	25.00	28.08	6.45	43.55
Helpless					
Neutral	Scene	12.50	12.17	5.26	19.74
	Approach	11.20	12.91	3.83	18.57
	Incident	8.30	8.69	2.48	14.12
	Consequence	14.60	27.85	-.47	29.67
Diagnosis	Scene	42.70	30.84	19.77	65.63
	Approach	54.60	25.53	35.54	73.66
	Incident	68.00	26.03	50.94	85.06
	Consequence	68.40	28.38	50.86	85.94
Treatment	Scene	44.90	32.07	23.93	65.87
	Approach	44.00	33.17	20.82	67.18
	Incident	50.60	34.26	30.02	71.18
	Consequence	39.00	27.99	18.20	59.80
Fear of Recurrence	Scene	29.20	32.54	6.40	52.00
	Approach	40.50	32.55	20.60	60.40
	Incident	44.60	36.41	21.67	67.54
	Consequence	37.20	28.13	17.19	57.21

(Table continues)

Table 10a continued

VAS-Script	Stage	Low		95% CIs	
		M	*SD*	*LL*	*UL*
PDI					
Neutral	Scene	12.50	17.94	1.78	23.22
	Approach	12.90	18.03	2.64	23.16
	Incident	12.50	17.71	2.37	22.63
	Consequence	9.10	15.39	.11	18.09
Diagnosis	Scene	28.30	24.84	12.58	43.02
	Approach	33.90	31.06	13.57	54.23
	Incident	51.20	39.08	25.60	76.80
	Consequence	51.70	36.69	25.89	77.51
Treatment	Scene	31.60	32.83	11.54	51.66
	Approach	29.30	58.52	9.26	49.34
	Incident	39.40	30.94	17.88	60.92
	Consequence	27.90	28.70	4.96	50.84
Fear of Recurrence	Scene	17.70	20.54	6.02	29.38
	Approach	17.20	19.08	4.03	30.37
	Incident	30.90	31.00	9.81	51.99
	Consequence	23.90	30.52	4.43	43.37
Sad					
Neutral	Scene	11.80	17.54	1.21	22.39
	Approach	12.40	16.05	1.96	22.84
	Incident	10.00	14.47	-2.15	22.15
	Consequence	4.80	4.42	-3.07	12.67
Diagnosis	Scene	64.70	27.56	43.60	85.80
	Approach	52.70	32.48	29.62	75.78
	Incident	66.60	34.29	57.63	85.57
	Consequence	67.40	29.73	49.73	85.07
Treatment	Scene	35.80	36.36	12.74	58.86
	Approach	35.00	36.73	10.32	59.69
	Incident	44.30	35.83	21.67	66.94
	Consequence	37.40	31.91	18.32	56.48
Fear of Recurrence	Scene	23.50	32.45	2.83	44.17
	Approach	24.20	30.50	5.73	42.67
	Incident	41.40	41.37	14.89	67.91
	Consequence	32.90	33.40	10.11	55.69

Table 10a continued

		Low		95% CIs	
VAS-Script	*Stage*	*M*	*SD*	*LL*	*UL*
Shocked					
Neutral	Scene	10.60	14.88	1.98	19.22
	Approach	7.40	8.54	1.70	13.10
	Incident	9.70	9.59	3.38	16.02
	Consequence	5.40	4.33	.76	10.05
Diagnosis	Scene	36.40	27.02	16.95	55.85
	Approach	36.50	29.52	15.58	57.42
	Incident	60.00	37.21	37.09	82.91
	Consequence	55.60	38.41	30.98	80.22
Treatment	Scene	27.20	29.45	5.95	48.45
	Approach	33.10	31.78	12.41	53.79
	Incident	41.40	36.14	16.62	66.18
	Consequence	30.70	29.42	10.42	50.98
Fear of Recurrence	Scene	20.50	29.77	3.46	37.54
	Approach	30.43	28.72	10.04	50.16
	Incident	60.29	37.60	11.40	56.00
	Consequence	28.80	32.98	5.26	52.35
Tense					
Neutral	Scene	13.70	18.44	3.58	23.82
	Approach	12.80	16.73	3.26	22.34
	Incident	13.20	16.22	3.88	22.52
	Consequence	10.10	14.84	1.39	18.81
Diagnosis	Scene	64.00	28.54	41.91	86.09
	Approach	61.60	29.96	40.94	82.26
	Incident	70.20	28.62	55.07	85.33
	Consequence	67.20	31.67	49.71	84.69
Treatment	Scene	42.00	33.25	18.46	65.54
	Approach	40.70	32.35	18.87	62.53
	Incident	47.80	35.72	25.14	70.46
	Consequence	42.60	30.93	22.42	62.78
Fear of Recurrence	Scene	26.40	31.85	4.36	48.44
	Approach	34.80	32.48	13.19	56.41
	Incident	58.70	37.21	36.03	81.37
	Consequence	34.60	31.75	14.00	55.20

(Table continues)

Table 10b

Means, standard deviations, and 95% confidence intervals for the psychological responses to each script at each stage for high resilience partners (n=17)

		High		95% CIs	
VAS-Script	Stage	*M*	*SD*	*LL*	*UL*
Anger					
Neutral	Scene	11.86	14.90	-.45	24.17
	Approach	15.86	7.93	3.83	27.89
	Incident	11.43	8.34	3.39	19.47
	Consequence	10.86	8.90	5.76	15.95
Diagnosis	Scene	29.86	29.54	12.80	46.91
	Approach	42.00	37.96	18.84	65.16
	Incident	44.14	35.32	19.28	69.01
	Consequence	47.71	35.17	24.37	71.06
Treatment	Scene	19.00	24.95	2.09	35.91
	Approach	33.57	36.69	10.72	56.42
	Incident	45.00	40.14	20.26	69.74
	Consequence	45.14	33.64	24.57	65.72
Fear of Recurrence	Scene	18.43	18.50	-4.02	40.88
	Approach	24.14	19.94	7.81	40.47
	Incident	40.29	27.55	24.00	56.57
	Consequence	34.43	25.94	19.28	49.58
Anxiety					
Neutral	Scene	14.43	11.06	-1.94	30.80
	Approach	15.00	10.94	-1.47	31.47
	Incident	12.14	8.43	-.04	24.32
	Consequence	11.29	9.07	.40	22.17
Diagnosis	Scene	61.57	35.66	33.05	90.10
	Approach	80.29	13.88	58.19	102.38
	Incident	91.43	3.99	75.81	107.05
	Consequence	86.43	7.64	67.18	105.68
Treatment	Scene	60.14	30.92	34.80	85.49
	Approach	65.29	33.61	67.87	92.71
	Incident	77.86	23.98	53.24	102.47
	Consequence	71.29	24.13	50.54	92.03
Fear of Recurrence	Scene	42.29	33.26	15.53	69.04
	Approach	57.43	30.56	34.64	80.22
	Incident	79.43	18.96	55.90	102.95
	Consequence	76.43	18.63	53.83	99.03

(Table continues)

Table 10b continued

VAS-Script	Stage	High *M*	High *SD*	95% CIs *LL*	95% CIs *UL*
Calm					
Neutral	Scene	88.00	6.66	69.21	106.79
	Approach	89.00	7.87	78.73	99.27
	Incident	90.57	7.39	78.82	102.32
	Consequence	92.43	6.21	84.78	100.08
Diagnosis	Scene	53.14	38.54	26.09	80.20
	Approach	33.86	31.75	12.08	55.63
	Incident	20.14	20.23	.61	39.68
	Consequence	20.86	22.24	-3.60	45.32
Treatment	Scene	40.86	27.45	17.09	64.63
	Approach	32.43	21.21	10.73	54.13
	Incident	29.71	22.98	6.54	52.89
	Consequence	29.14	22.15	8.07	50.22
Fear of Recurrence	Scene	69.71	29.17	44.99	94.44
	Approach	48.43	30.91	24.64	72.22
	Incident	26.71	26.92	4.22	49.21
	Consequence	45.00	27.91	18.82	71.18
Fearful					
Neutral	Scene	11.86	9.28	-4.14	27.86
	Approach	12.43	8.46	-2.14	27.00
	Incident	11.43	8.77	-3.07	25.92
	Consequence	11.29	8.20	.20	22.37
Diagnosis	Scene	62.71	30.67	36.48	88.95
	Approach	69.29	25.96	44.16	94.42
	Incident	88.29	4.72	69.88	106.69
	Consequence	83.14	13.38	58.97	107.32
Treatment	Scene	47.43	34.48	18.56	76.30
	Approach	58.00	32.35	30.42	85.58
	Incident	70.57	29.69	43.18	97.97
	Consequence	56.71	34.38	30.46	82.97
Fear of Recurrence	Scene	28.14	24.56	3.11	53.18
	Approach	50.86	28.15	29.38	72.34
	Incident	78.29	18.35	53.23	103.34
	Consequence	67.29	20.57	43.22	91.35

(Table continues)

Table 10b continued

VAS-Script	Stage	High		95% CIs	
		M	*SD*	*LL*	*UL*
Frustrated					
Neutral	Scene	15.14	11.35	.14	30.14
	Approach	16.57	7.14	3.42	29.73
	Incident	13.00	9.07	-.66	26.66
	Consequence	11.71	9.34	.80	22.63
Diagnosis	Scene	34.86	25.14	14.42	55.30
	Approach	47.71	36.61	21.88	73.55
	Incident	76.57	20.93	53.67	99.47
	Consequence	77.71	20.34	51.80	103.62
Treatment	Scene	28.71	20.93	4.24	53.19
	Approach	40.86	36.20	11.81	69.91
	Incident	68.00	36.45	40.56	95.44
	Consequence	59.14	34.35	32.03	86.26
Fear of Recurrence	Scene	33.71	36.29	5.48	61.95
	Approach	46.57	26.89	24.51	68.63
	Incident	68.71	36.14	43.10	94.33
	Consequence	67.57	26.68	45.40	89.75
Helpless					
Neutral	Scene	11.00	8.17	2.34	19.66
	Approach	11.57	7.00	2.76	20.38
	Incident	8.57	8.54	1.62	15.53
	Consequence	7.86	9.30	-10.15	25.87
Diagnosis	Scene	41.86	38.30	14.45	69.27
	Approach	53.43	31.96	30.65	76.21
	Incident	72.00	24.20	51.61	92.40
	Consequence	76.43	22.01	55.47	97.39
Treatment	Scene	48.29	29.61	23.22	73.35
	Approach	61.57	36.15	33.87	89.28
	Incident	72.29	23.89	47.68	96.89
	Consequence	59.00	34.71	34.14	83.86
Fear of Recurrence	Scene	32.57	35.67	5.32	59.82
	Approach	42.71	24.31	18.93	66.50
	Incident	69.71	30.10	42.30	97.13
	Consequence	61.00	31.88	37.09	84.91

(Table continues)

Table 10b continued

VAS-Script	Stage	High		95% CIs	
		M	*SD*	*LL*	*UL*
PDI					
Neutral	Scene	10.57	12.22	-2.24	23.38
	Approach	9.14	9.56	-3.12	21.41
	Incident	9.14	9.72	-2.97	21.25
	Consequence	8.14	9.44	-2.60	18.87
Diagnosis	Scene	19.00	16.36	1.40	36.60
	Approach	34.00	28.75	9.70	58.30
	Incident	59.57	36.26	28.98	90.17
	Consequence	61.57	36.09	30.73	92.42
Treatment	Scene	19.14	24.46	-4.84	43.12
	Approach	24.29	31.48	.33	48.24
	Incident	25.86	33.34	.14	51.57
	Consequence	31.71	40.75	4.29	59.14
Fear of Recurrence	Scene	15.86	10.82	1.90	29.81
	Approach	25.43	20.22	9.68	41.17
	Incident	46.14	31.74	20.93	71.36
	Consequence	43.14	26.25	19.87	66.42
Sad					
Neutral	Scene	13.71	12.47	1.06	26.37
	Approach	14.86	14.61	2.38	27.34
	Incident	15.86	22.31	1.34	30.37
	Consequence	14.14	17.64	4.74	23.54
Diagnosis	Scene	44.14	36.22	18.92	69.37
	Approach	58.43	36.72	30.84	86.01
	Incident	82.71	14.74	60.04	105.39
	Consequence	82.29	19.80	61.17	103.40
Treatment	Scene	40.43	30.71	12.87	67.99
	Approach	54.14	36.46	24.64	83.65
	Incident	70.29	29.89	43.23	97.34
	Consequence	75.43	21.82	52.62	98.24
Fear of Recurrence	Scene	33.71	27.79	9.01	58.42
	Approach	55.14	21.97	33.07	77.22
	Incident	63.43	36.06	31.74	95.12
	Consequence	55.57	34.42	28.33	82.81

Table 10b continued

		High		95% CIs	
VAS-Script	*Stage*	*M*	*SD*	*LL*	*UL*
Shocked					
Neutral	Scene	10.29	8.79	-.02	20.59
	Approach	11.86	8.32	5.05	18.67
	Incident	10.14	9.05	2.59	17.70
	Consequence	9.00	9.52	3.45	14.55
Diagnosis	Scene	27.57	31.42	4.32	50.82
	Approach	44.00	33.17	19.00	69.00
	Incident	80.86	28.48	53.48	108.24
	Consequence	79.14	33.51	49.72	108.57
Treatment	Scene	34.57	34.42	9.17	59.97
	Approach	29.00	29.98	4.28	53.73
	Incident	56.29	37.68	26.67	85.91
	Consequence	49.86	31.07	25.61	74.10
Fear of Recurrence	Scene	23.71	16.41	3.34	44.08
	Approach	30.43	28.72	6.45	54.41
	Incident	60.29	37.60	33.63	86.94
	Consequence	47.74	37.63	19.57	75.86
Tense					
Neutral	Scene	9.00	7.30	-3.09	21.09
	Approach	10.43	8.98	-.97	21.83
	Incident	8.86	9.16	-2.29	20.00
	Consequence	9.43	9.33	-.98	19.84
Diagnosis	Scene	55.43	38.24	29.03	81.83
	Approach	67.86	31.67	43.16	92.55
	Incident	92.00	5.57	73.92	110.08
	Consequence	85.14	13.40	64.24	106.05
Treatment	Scene	47.71	37.29	19.58	75.85
	Approach	57.00	32.46	30.91	83.10
	Incident	74.29	30.20	47.20	101.37
	Consequence	67.43	28.39	43.31	94.55
Fear of Recurrence	Scene	45.00	33.94	18.66	71.34
	Approach	47.71	31.43	21.88	73.55
	Incident	80.71	27.40	53.62	107.81
	Consequence	72.14	28.70	47.52	96.77

Appendix I

Table 11

Group means and standard deviations for each subscale from the BriefCOPE.

Coping Subscale	Group			
	Low		High	
	M	*(SD)*	*M*	*(SD)*
Self-Distraction	4.38	(2.19)	4.91	(2.02)
Active coping	5.38	(2.25)	6.45	(1.50)
Denial	2.56	(.96)	2.41	(.96)
Substance use	3.38	(1.93)	2.77	(1.15)
Use of Emotional Support	5.00	(1.93)	5.59	(1.84)
Use of instrumental support	5.06	(2.35)	5.14	(2.15)
Behavioural disengagement	2.81	(1.17)	2.18	(.66)
Venting	3.63	(1.31)	3.59	(1.37)
Positive Reframing	4.38	(1.71)	4.41	(1.62)
Planning	4.94	(1.98)	5.18	(1.94)
Humour	2.75	(1.65)	3.41	(1.65)
Acceptance	6.13	(2.00)	6.82	(1.40)
Religion	3.94	(2.44)	4.41	(2.32)
Self-Blame	3.00	(1.41)	3.27	(1.24)